2016

simula

Annual Report

Simula Research Laboratory conducts basic research in selected fields within scientific computing, software engineering and communication systems. Simula is organized as a limited company and is owned by the Ministry of Education and Research.

The annual report includes the directors' report, financial statements, publication lists, as well as the report on social responsibility and work environment. A more detailed report on the activities is presented in a separate publication titled "This is Simula 2017".

simula

Annual Report

Kalkulo — Ten Years Later

Managing Director's report

Late in 2004, a small delegation from Norsk Hydro visited Simula. As usual, we presented what we were doing and how we were working. A very entusiastic leader of the delegation bombarded us with questions about how we were able to set up focused research teams and maintain concentrated efforts; his experience was that the research focus tended to disperse over time, stymieing progress.

At the end of the meeting, he asked me how much it would cost to set up a research team at Simula. And so we put together an exploratory group to look into what Simula could do for Norsk Hydro, and how the venture should be organized.

**Professor Aslak Tveito,
Managing director of Simula**

The group recommended a comprehensive collaboration between Norsk Hydro and Simula. The principles underlying the collaboration were very simple: the programme should consist of 50 % development work and 50 % research, and the research part should be completely open and allowed to publish its results. At Simula, we were both very happy and also very proud of the agreement. But outside forces strongly opposed it. Indeed, the organization of research institutes in Norway wrote a letter to the Research Council of Norway concluding that Simula should be closed down as soon as possible. The Government, on the other hand, viewed this completely differently and applauded the fact that a commercial company would invest substantial amounts in open research. But the Government also underlined that Simula had to make sure not to use government funding to subsidize industry projects. Therefore, a subsidiary named Kalkulo was established to create a sharp distinction between Simula and collaborations with commercial companies. Since its inception in 2006, Kalkulo has been financially completely independent of Simula and has provided substantial revenues for its parent organization.

Over the past ten years, the work that started with Norsk Hydro and continued after its merger with Statoil has resulted in revenue amounting to about NOK 150 million. For a long time Statoil was the only substantial customer of Kalkulo, but this has now changed and other large collaborations have resulted in substantial revenues for Kalkulo.

Kalkulo has shown that there is a market for research and development services based on highly competent employees. This observation has also been confirmed by Testify and more recently by Expert Analytics, both companies with roots at Simula.

It took a while before I again met the leader of the Norsk Hydro delegation. But in September 2013, Are Magnus Bruaset and

I received an email from him with this beautiful introduction: 'I'm now retired but not tired' and it was signed Bjørn Rasmussen. A few hours after we got the email, Are Magnus and I met with Bjørn and we immediately recognized the energy and enthusiasm from our meeting back in 2004. We promptly gave him an offer to start working in Simula, and in 2014 he took over as the leader of Kalkulo. Despite tough conditions in their market, Kalkulo has grown considerably under Bjørn's leadership and is presently in a better position than ever before. Bjørn and his excellent team consistently aim higher and search for new challenges and opportunities.

Kalkulo quick facts

Established in 2006

23 employees

Operating revenue of 27.6 MNOK, and a annual result of 3 MNOK in 2016

Director of Kalkulo Bjørn Rasmussen

Report of the Board of Directors 2016

Simula Research Laboratory conducts fundamental long-term research on selected aspects of software and communications technologies, with the aim of contributing to creativity and innovation in business.

In its 15th operating year, Simula Research Laboratory AS (SRL) and Simula Group achieved a turnover of NOK 163 million and NOK 213 million, and net results of NOK 8.2 million and NOK 15.2 million, respectively.

Administration and Organisation

Simula Research Laboratory is organised as a limited company under the ownership of the Norwegian Ministry of Education and Research. The company combines academic traditions with recognised business management models. Simula Research Laboratory is the parent company of Simula Innovation AS and Simula School of Research and Innovation AS (SSRI). Simula Innovation is wholly-owned subsidiary, while Simula School of Research and Innovation is owned by SRL (56 %), Statoil (21 %), the Municipality of Bærum (14 %), Telenor (7 %), the Norwegian Computing Center (1 %), and Sintef (1 %). The shares in Kalkulo AS were in 2015 transferred from SRL to Simula Innovation. Kalkulo is still a part of the Simula Group accounts. The limited company "Forskningssenteret for informasjons- og kommunikasjonssikkerhet AS" with the short name "Simula@UiB", was established in 2016, with SRL and the University of Bergen as owners (with 51 % and 49 %, respectively). The parent company and its subsidiaries cooperate closely, and they are located in the Municipality of Bærum, except Simula@UiB, which is located in Bergen.

Activities

Simula conducts fundamental long-term research on communications in computer and mobile networks, scientific computing, and methods for developing and testing software systems. Our research focuses on fundamental challenges that combine technological development with utility value for industry and society as a whole.

The awarding of the very prestigious ERC Starting Grant to senior researcher Marie E. Rognes for the project Waterscales, is a significant recognition of her research, and marks a milestone for Simula. The aim of the project is to establish the mathematical and computational foundations for modelling fluid flow and solute transport through the brain. The project will run for five years.

Simula's research is published in international scientific journals and by leading non-fiction publishing companies. In 2016, Simula's research featured in 77 articles in international journals, 7 books, 4 chapters in books and 106 peer reviewed conference proceedings.

Over the course of 2016, Simula's scientific employees supervised 4 doctoral candidates and 21 Master's students to the successful completion of their degrees. From 2001 to the end of 2016, 98 doctoral candidates and 352 Master's students have been supervised at Simula.

The University of Oslo, which is an important partner, granted most of these degrees. Degrees have also been awarded from NTNU, UiT, Ludwig-Maximillian Universität München, and Delft University of Technology over the past years.

Personnel and HSE

At the end of 2016, Simula Group had a total of 151 employees, with 131 in full-time positions and 20 in part-time positions. Of these, 111 were men and 40 were women, with 64 Norwegians and 87 foreign nationals. 59 people were employed as research fellows, with 24 postdoctoral positions and 35 PhD students. In addition, there were 20 external PhD students who are supervised by Simula's researchers.

At the end of 2016, Simula Research Laboratory had a total of 63 employees, with 46 in full-time positions and 17 in part-time positions. Of these, 49 were men and 14 were women.

The board aims to continue its focus on HSE for the long-term. Absence due to illness was 1.7 % for the Group and 1.3 % for Simula in 2016. The Group will be working actively to keep sick leave at continued low levels. There were no reports of occupational diseases or accidents during the year. HSE incidents are now reported at each board meeting.

Simula's business activities do not pollute the external environment, beyond the expected from a typical office business.

Equal Opportunity and Integration

The boards of Simula and SSRI have earlier adopted an action plan that aimed to increase the proportion of female employees in scientific positions to 30 per cent by 2017. By the end of 2016 the portion of female scientific researchers, meaning the average of PhD students, postdoctoral fellows and researchers in permanent positions, was 27 per cent. The proportion of female researchers in permanent positions is 22 per cent, and among PhD students and postdoctoral fellows, the portion is respectively 29 and 33 per cent.

Simula continues to work actively to improve the gender balance in the group through

goal-oriented planning. In order to meet the target of 30 per cent female researchers by 2017, Simula will continue to focus on initiatives for both recruiting new and talented female candidates, and developing and adapting work situations for qualified women already employed by Simula.

The Group is also working to promote the objectives of the Anti-Discrimination Act, to promote equality, ensure equal opportunities and rights and to prevent discrimination in the workplace. There are 32 different nationalities represented in Simula Group. Over 58 per cent of the Group's employees come from outside Norway. Simula offers courses in Norwegian, social events and assistance with regard to visas, taxes, living accommodations and other administrative issues.

Ethics

Simula follows ethical guidelines as described in "The Simula Code of Ethics", which also comprises research ethics, based on the fact that Simula is an institution dedicated to truth and the pursuit of truth. The institution's reputation is dependent on others being able to trust that research results are correct and have been produced in a verifiable and ethically responsible manner. For questions regarding research ethics, Simula's researchers are to adhere to the guidelines set by the National Committee for Research Ethics in Science and Technology (NENT). In addition, all employees must follow Simula's internal guidelines for scientific publishing, which are based on the Vancouver Convention.

Risk

In its 15th operating year, the Group had a turnover of NOK 213 million, an increase of 11 % from the previous year. Operating results were NOK 17 million, with a net result of NOK 15.2 million.

Simula Research Laboratory AS had a total operating revenue of NOK 163 million in 2016. External project funding was a total of NOK 108 million. The net profit for the year was NOK 8.2 million, which was transferred to other equity. Equity in Simula Research Laboratory AS constitutes NOK 41 million, corresponding to an equity ratio of 50 % of total assets.

Simula School of Research and Innovation AS had a total operating revenue of NOK 49.8 million in 2016, with a net result of NOK 2.2 million.

Simula Innovation AS had a total operating revenue of NOK 3.7 million, with a net result after tax of NOK 1.6 million in 2016 (after recognition of dividend from Kalkulo AS of 2.5 million).

Forskningssenteret for informasjons- og kommunikasjonssikkerhet AS (Simula@UiB),

was established in 2016, and receives financial support from the Ministry of Transport and Communications. The total operating revenue was NOK 10 million, with a net profit after tax of NOK 2.7 million in 2016.

In 2016, Kalkulo's total operating revenues amounted to NOK 27.6 million, with a net profit after tax of NOK 3 million.

Future Development

The board believes that our annual accounts provide a correct picture of Simula Research Laboratory AS and the Group. The Group is in a healthy economic and financial position.

A special focus on EU's framework for project funding resulted in several projects that started up during 2015. Since then, this effort has led to even more projects. By the end of 2016, Simula participates in 12 projects funded by the EU.

In accordance with section 3, paragraph 3a of the Norwegian Accounting Act, conditions for continuing operations are confirmed present, and the annual accounts are prepared accordingly.

The work of the board of directors

Simula's board has had four meetings and a seminar in 2016. The board would like to thank all employees for their strong contributions throughout the year.

Fornebu, 8 March 2017

08 Income statement

SRL 2015	SRL 2016		Note	Simula Group 2016	Simula Group 2015
Operating revenues					
147.046.710	162.679.196	Operating Revenues	6	212.599.836	190.814.637
147.046.710	**162.679.196**	**Total operating revenues**		**212.599.836**	**190.814.637**
		Operating expenses			
83.209.637	85.130.828	Salary and social costs	5	116.842.293	109.261.088
1.806.595	2.283.068	Depreciation	3	2.364.592	1.854.238
50.001.990	66.723.642	Other operating expenses		76.394.801	62.274.815
135.018.223	**154.137.538**	**Total operating expenses**		**195.601.686**	**173.390.142**
12.028.487	**8.541.658**	**Operating profit**		**16.998.150**	**17.424.495**
		Financial items			
113.213	62.312	Other interest income		205.004	206.037
138.223	445.332	Other financial income		946.782	419.062
0	0	Write-down of shares	12	1.199.740	31.915
293.956	257.544	Other interest expenses		279.937	300.711
94.242	621.283	Other financial expenses		649.968	109.887
-136.762	**-371.183**	**Net financial items**		**-977.859**	**182.586**
11.891.725	**8.170.475**	**Profit before tax**		**16.020.291**	**17.607.081**
0	0	Tax	13	807.591	1.411.860
11.891.725	**8.170.475**	**Net profit**		**15.212.700**	**16.195.221**
0	0	Minority interests		2.288.006	113.820
11.891.725	8.170.475	Profit after minority interest		12.924.694	16.081.401

Allocation of the year's net profit

SRL 2015	SRL 2016	
11.891.725	8.170.475	Transferred to other equity
11.891.725	**8.170.475**	**Total allocated**

09 Balance sheet – assets

SRL 2015	SRL 2016		Note	Simula Group 2016	Simula Group 2015
Fixed assets					
		Tangible fixed assets			
6.120.193	6.462.507	Furniture, fixtures, equipment	3	6.675.141	6.190.831
6.120.193	6.462.507	Total tangible fixed assets		6.675.141	6.190.831
		Financial fixed assets			
5.319.700	5.523.700	Investments in subsidiaries	10	0	0
0	9.000.000	Loans to group companies		2.439.479	1.106.750
0	0	Investments in shares	12	16.364.718	11.809.505
5.319.700	14.523.700	Total financial fixed assets		18.804.197	12.916.255
11.439.893	**20.986.207**	**Total fixed assets**		**25.479.338**	**19.107.086**
Current assets					
		Receivables			
5.423.200	11.362.117	Account receivables		14.033.298	5.982.954
14.586.098	1.062.863	Other receivables		4.003.174	15.854.079
20.009.297	12.424.979	Total receivables		18.036.472	21.837.032
35.384.051	49.121.041	Bank deposits	9	74.094.086	46.022.804
55.393.349	**61.546.021**	**Total current assets**		**92.130.558**	**67.859.837**
66.833.242	**82.532.227**	**Total assets**		**117.609.895**	**86.966.922**

Balance sheet - equity and liabilities

SRL 2015	SRL 2016		Note	Simula Group 2016	Simula Group 2015
		Equity			
		Paid-in equity			
1.200.000	1.200.000	Share capital	7,8	1.200.000	1.200.000
0	0	Premium		0	0
1.200.000	1.200.000	Total paid-in equity		1.200.000	1.200.000
		Retained earnings			
31.664.974	39.835.450	Other equity	8	58.567.305	45.642.612
0	0	Minority interests	8	4.410.362	1.926.356
31.664.974	39.835.450	Total retained earnings		62.977.667	47.568.968
32.864.974	**41.035.450**	**Total equity**		**64.177.668**	**48.768.968**
		Liabilities			
		Provisions			
0	0	Deferred tax	13	76.606	99.487
0	0	Total provisions		76.606	99.487
		Other long term debt			
3.833.338	3.500.006	Debt to credit institutions	15	3.500.006	3.833.338
3.833.338	3.500.006	Total other long term debt		3.500.006	3.833.338
		Current liabilities			
15.325.550	16.098.948	Accounts payable		8.092.636	4.982.123
0	0	Tax payable	13	830.472	1.447.813
4.454.314	3.418.879	Public duties payable		8.499.335	10.110.842
10.355.065	18.478.945	Other current liabilities		32.433.173	17.724.350
30.134.929	37.996.772	Total current liabilities		49.855.616	34.265.129
33.968.267	**41.496.778**	**Total liabilities**		**53.432.228**	**38.197.954**
66.833.242	**82.532.227**	**Total equity and liabilities**		**117.609.895**	**86.966.922**

The Board of Directors

Ingvild R. Myhre
Chair of the Board

Aslak Tveito
Managing Director

Mats A. Lundqvist
Board member

Pinar Heggernes
Board member

Ingolf Søreide
Board member

Ernst G. Gran
Board member

Yngvild Wasteson
Board member

Silvija Seres
Board member

Annik M. Myhre
Board member

Sverre Gotaas
Board member

Sverre Gotaas
Board member

Özgü Alay
Board member

Notes to the financial statements

Note 1   Accounting principles

The financial statements have been prepared in accordance with the regulations of the Norwegian Accounting Act of 1998 and generally accepted accounting principles.

General rule for valuation and classification of assets and liabilities

Assets intended for permanent ownership or long-term use have been classified as fixed assets. Other assets have been classified as current assets. Receivables to be repaid within one year are classified as current assets. Similar criteria have been applied to the classification of current and long-term liabilities.

Fixed assets are valued at aquisition cost, but written down to fair value for any impairments that are not expected to be temporary. Fixed assets with a limited economic life are depreciated over the useful life of the asset. Long-term liabilities are recognised at nominal value in the balance sheet on the date they are incurred. Long-term liabilities are not revalued to fair value as a result of due to changes in interest rates.

Current assets are valued at the lower of cost and fair value. Current liabilities are recognised at nominal value in the balance sheet on the date they are incurred. Current liabilities are not appreciated to fair value as a result of changes in interest rates.

Certain items are valued according to other principles, as explained below.

Foreign Currency transactions

Assets and liabilities in foreign currency are translated into Norwegian kroner at the mid-rates quoted by Norway´s National Bank on the balance sheet reporting day.

Tangible fixed assets

Tangible fixed assets are depreciated over the expected useful life of the asset. Depreciation is generally performed in a straight line over the expected useful life of the asset.

Receivables

Accounts receivables and other receivables are recognised at nominal value less provisions for anticipated losses from bad debt. Provisions for losses are based on an individual assessment of each receivable. In addition, if necessary, a general provision is made to cover expected losses on other receivables.

Pensions

Pensions are accounted for using a linear accrual profile and anticipated final salary as the accrual basis.

Tax

The company has not recognised tax expenses in the parent company's financial statements, since the operation is not considered to be liable for tax.

Revenue recognition

Revenues are recognised when delivery has taken place.

The Group

The consolidated financial statements comprise the parent company Simula Research Laboratory AS (SRL) and the subsidiaries Simula School of Research and Innovation AS (SSRI), Simula Innovation AS (SI), Kalkulo AS and Forskningssenteret for informasjons- og kommunikasjonssikkeret AS (Simula@UiB). Although the Group owns 60 % of Celerway Communication AS, it is not included in the consolidated financial statements. The consolidated financial statements are prepared as if the Group were one economic entity. Transactions and balances between group companies are eliminated.

Note 2   Financial market risk and currency risk

The company is to a certain extent exposed to financial market risks, by investing in start-up companies. The currency risk the company is exposed to is due to EU research funding.

Note 3   Fixed assets

SRL

Fixed assets	Computer equipment	Furnishings, equipment, etc.	Total
Acquisition cost as of 01.01	7.039.536	16.605.438	23.644.974
Additions	506.053	2.119.329	2.625.382
Disposals	-	-	-
Acquisition cost as of 31.12	7.545.589	18.724.767	26.270.356
Cumulative depreciation as of 31.12	-6.838.016	-12.969.833	-19.807.849
Book value as of 31.12	**707.573**	**5.754.934**	**6.462.507**
Year's depreciation	**726.279**	**1.556.789**	**2.283.068**

Simula Group

Fixed assets	Computer equipment	Furnishings, equipment, etc.	Total
Acquisition cost as of 01.01	8.126.120	16.605.438	24.731.558
Additions	611.018	2.237.885	2.848.903
Disposals	-	-	-
Acquisition cost as of 31.12	8.737.138	18.843.323	27.580.461
Cumulative depreciation as of 31.12	-7.816.931	-13.088.389	-20.905.320
Book value as of 31.12	**920.207**	**5.754.934**	**6.675.141**
Year's depreciation	**788.592**	**1.576.000**	**2.364.592**

The economic life of operating assets is calculated as:
• Computer equipment   2-5 years
• Furnishings, fixtures & equipment   3-5 years

Note 4   Pensions

The Group has a duty to maintain an occupational pension scheme in accordance with the Mandatory Occupational Pension Schemes Act. The company's pension schemes fulfil the requirements of this legislation.

The Group has a pension scheme which covers all employees. The scheme entitles members to defined future benefits. These are primarily dependent on the number of years of pension accrual, salary level at retirement and the size of the pension benefits received from the Norwegian National Insurance Scheme. The occupational pension scheme is financed through the build-up of funds in the Norwegian Public Service Pension Fund.

Note 5   Payroll costs, number of employees, remunerations, employee loans and auditor's fees

	SRL		Simula Group	
Salary and social costs	2015	2016	2015	2016
Salary	40.484.742	44.980.423	84.091.877	94.026.731
Social security	5.882.680	6.268.785	12.754.759	13.830.719
Pension costs	3.868.294	2.737.876	7.146.575	3.073.255
Other benefits	4.187.883	2.816.990	5.267.877	5.911.588
Contribution to cover cost of labour at SSRI	27.123.592	28.326.754	-	-
Contribution to cover cost of labour at SI	1.603.064	-	-	-
Contribution to cover cost of labour at Kalkulo	131.331	-	-	-
Total	**83.281.586**	**85.130.828**	**109.261.088**	**116.842.293**
Number of full-time equivalents	**51**	**51**	**124**	**131**

Auditor
The auditor's fees break down as follows:

SRL		Subsidiaries	
Statutory auditing services	96.000	Statutory auditing services	125.800
Other services	25.800	Other services	27.900
Total auditor's fees	**121.800**	**Total auditor's fees**	**153.700**

The auditor's fee is stated exclusive of VAT.

Remuneration paid to senior company officers	Managing Director	Board of Directors
Salary	2.508.297	461.425
Pension expenses	174.327	-
Other remuneration	130.145	-
Total remuneration	**2.812.769**	**461.425**

No loans have been granted to, nor any guarantees made on behalf of, the Managing Director, the Board Chair or any other related parties. No loans or guarantees account for more than 5% of the company's share capital.

Note 6 Operating revenue

	SRL		Simula Group	
	2015	2016	2015	2016
Research funding	53.000.000	54.000.000	58.000.000	59.000.000
Subsidies from the Research Council of Norway, EU, etc.	93.972.253	107.912.196	106.573.527	125.873.171
Other income	74.457	767.000	26.241.110	27.726.665
Total	**147.046.710**	**162.679.196**	**190.814.637**	**212.599.836**

Note 7 Share capital and shareholders

SRL

Share capital	Quantity	Face value	Book value
Ordinary shares	800	1.500	1.200.000
Total	**800**		**1.200.000**

The company's shareholders as of 31.12:	Quantity	Shareholding
The Norwegian state represented by the Ministry of Education and Research	800	100.0 %
Total	**800**	**100.0 %**

Note 8 Equity

SRL

	Share capital	Other equity	Total
Equity as of 01.01	1.200.000	31.664.974	32.864.974
Profit/loss for the year		8.170.475	8.170.475
Equity as of 31.12	**1.200.000**	**39.835.450**	**41.035.450**

Simula Group

	Share capital	Other equity	Minority interests	Total
Equity as of 01.01	1.200.000	45.642.612	1.926.356	48.768.968
Injected equity	-	-	196.000	196.000
Profit/loss for the year	-	12.924.694	2.288.006	15.212.700
Equity as of 31.12	**1.200.000**	**58.567.306**	**4.410.362**	**64.177.668**

Note 9 Bank deposits

	SRL	Simula Group
Restricted tax withholdings total:	1.940.129	4.266.768
Restricted bank deposits relating to leasing contracts total:	3.058.323	3.058.323

Note 10 Subsidiaries, associates, etc.

	Acquired	Office	Country	Shareholding
Simula Innovation AS	04.05.2004	Fornebu	Norway	100%
Simula School of Research and Innovation AS	08.05.2007	Fornebu	Norway	55.74%
Forskningssenteret for info.- og komm. sikkerhet	17.12.2015	Bergen	Norway	51%

In 2016 Kalkulo AS, which is wholly owned by Simula Innovation AS, posted a profit of NOK 3.012.799. Recognised equity as of 31.12.16 totals NOK 4.159.033 after provisions for a dividend payment of NOK 2.500.000. Dividend is taken to income in the parent company in 2016.

Note 11 Balances and transactions between group companies and associates

	2015	2016
Receivable from SI AS	13.033.753	11.403.044
Receivable from Kalkulo AS	400.072	-
Receivable from SSRI AS	34.138	529.459
Receivable from Celerway Communications AS	-	610.871
Receivables from Forskningssenteret for informasjon- og kommunikasjonssikkerhet AS	-	187.500
Payable to SI AS	1.642.313	1.731.859
Payable to Kalkulo AS	91.242	404.272
Payable to SSRI AS	9.382.996	7.838.527
Payable to Celerway Communications AS	1.307.647	-
Payable to Forskningssenteret for informasjon- og kommunikasjonssikkerhet AS	-	1.819.109
Salary costs refunded from SI AS	251.996	-
Salary costs refunded from Kalkulo AS	159.580	-
Salary costs refunded from SSRI AS	1.470.944	1.053.559
Salary costs refunded to SI AS	1.603.064	-
Salary costs refunded to Kalkulo AS	131.331	-
Salary costs refunded to SSRI AS	27.123.592	29.280.992
Sale of services, etc. to SI AS	975.450	-
Sale of services, etc. to Kalkulo AS	1.500.000	600.000
Sale of services, etc. to SSRI AS	3.281.355	85.176
Sale of services, etc. to Celerway Communications AS	159.553	1.004.000
Sale of services, etc. to Forskningssenteret for informasjon- og kommunikasjonssikkerhet AS	-	2.370.355
Purchase of services, etc. from SI AS	4.699.272	2.906.205
Purchase of services, etc. from Kalkulo AS	2.559.535	109.067
Purchase of services, etc. from SSRI AS	2.946.398	2.650.000

Note 12 Securities and shares in other enterprises, etc.

	Quantity	Face value per share	Shareholding	Cost price
Expert Analytics AS	5.294	1	15.0 %	600.000
Testify AS	44.433	1	30.0 %	1.427.117
Truegroups AS	76.923	13	3.5 %	999.999
Forzasys AS	53.020	0.34	30.0 %	1.528.075
Fabriscale Technologies AS	20.789	1	46.1 %	4.510.514
LABO Mixed Realities AS	538	100	35.0 %	1.199.740
Symphonical AS	1.005.528	0.1	5.0 %	1.325.151
Intelliview AS	94	79.79	18.8 %	1.000.000
Edgefolio UK Limited	40.763	GBP 1.00	8.9 %	1.633.454
Radytek Sp. z o.o., Polen	34	PLN 50	33.3 %	3.045
Insilicomed Inc, USA	131.945	USD 1.8		1.220.755
Imerso AS	841	500	12.5 %	913.925
EYR Medical AS	16.350	0.3	8.1 %	730.845
Celerway Communications AS	22.500	1	60.0 %	3.017.745
Write-down of shares				3.745.647
Total investment in associates				**16.364.718**

The investment in LABO Mixed Realities AS is fully written down in 2016.

Note 13   Tax

The activities of Simula Research Laboratory AS and its subsidiaries Simula School of Research and Innovation AS and Simula@UiB are not considered taxable. The subsidiaries Simula Innovation AS og Kalkulo AS are liable for tax.

Simula Group

Taxation for the year consists of:	2015	2016
Tax payable	1.447.813	830.472
Change in deferred tax	-35.953	-22.881
Total tax expense	**1.411.860**	**807.591**

Tax payable for the year is calculated as follows:	2015	2016
Profit before tax	8.358.425	5.466.413
Permanent differences	-3.102.456	-2.337.557
Change in temporary differences	106.299	78.946
Loss carryforward SI	-	114.086
Taxable income	**5.362.268**	**3.321.888**

Simula Group

Temporary differences:	2015	2016
Other differences	503.316	402.653
Fixed assets	-76.787	-55.070
Loss carryforward	-	-114.086
Write-down of shares	-1.220.754	-1.220.754
Total basis for deferred tax asset	-794.225	-987.257
Deferred tax liability/asset	-198.556	-236.942
Unrecognised deferred tax asset	-298.043	-313.546
Recognised deferred tax liability	**99.487**	**76.606**

Note 14   Rental and leasing contracts

The company has entered into two leasing agreements with respect to photocopiers and computer equipment which expire in 2017 and 2018. The year's cost totals NOK 509.752.

Note 15   Receivables and liabilities

	SRL		Simula Group	
Non-current liabilities maturing more than 5 years hence	2015	2016	2015	2016
Debt to credit institutions	3.833.338	3.500.006	3.833.338	3.500.006
Total	**3.833.338**	**3.500.006**	**3.833.338**	**3.500.006**
Secured debt	3.833.338	3.500.006	3.833.338	3.500.006
Assets pledged as securities:				
Accounts receivables	5.000.000	5.000.000	5.000.000	5.000.000
Operating assets	2.500.000	2.500.000	2.500.000	2.500.000
Total	**7.500.000**	**7.500.000**	**7.500.000**	**7.500.000**

Cash flow statement

SRL			Simula Group	
2015	2016		2016	2015
		Cash flow from operating activities		
11.891.725	8.170.475	Net profit for the year	15.212.700	16.195.221
1.806.595	2.283.068	Depreciation and write-downs	2.364.592	1.854.238
-	-	Change in value of shares	-	31.915
-4.250.887	-1.415.682	Change in receivables	2.467.831	-3.005.732
11.878.011	7.861.843	Change in current liabilities	15.590.487	8.024.840
21.325.444	**16.899.704**	**Net cash flow from operating activities**	**35.635.610**	**23.100.482**
		Cash flow from investing activities		
-1.050.544	-2.625.392	Net investments in operating assets	-2.848.912	-1.121.283
	-204.000	Net investments in/sale of shares	-4.555.213	-3.900.819
-1.050.544	**-2.829.392**	**Net cash flow from investing activities**	**-7.404.125**	**-5.022.102**
		Cash flow from financing activities		
-333.322	-333.322	Repayments of loans	-333.322	-333.322
-	-	Injected equity	196.000	-
-	-	Change in deferred tax	-22.881	-35.953
-333.322	**-333.322**	**Net cash flow from financing activities**	**-160.203**	**-369.275**
19.941.578	13.736.990	Net cash flow for the year	28.071.282	17.709.105
15.442.473	35.384.051	Cash holdings 01/01	46.022.804	28.313.699
35.384.051	**49.121.041**	**Cash holdings 31/12**	**74.094.086**	**46.022.804**

![Lundes Revisjonskontor DA]

Til generalforsamlingen i
SIMULA RESEARCH LABORATORY AS

UAVHENGIG REVISORS BERETNING

Uttalelse om revisjonen av årsregnskapet

Konklusjon
Vi har revidert SIMULA RESEARCH LABORATORY AS' årsregnskap som viser et overskudd for selskapsregnskapet på kr. 8.170.475,- og et overskudd for konsernregnskapet på kr. 15.212.700,-, og etter vår mening:

- er årsregnskapet avgitt i samsvar med lov og forskrifter
- gir selskapsregnskapet et rettvisende bilde av den finansielle stilling til SIMULA RESEARCH LABORATORY AS per 31. desember 2016 og av selskapets resultater og kontantstrømmer for regnskapsåret som ble avsluttet per denne datoen i samsvar med regnskapslovens regler og god regnskapsskikk i Norge.
- gir konsernregnskapet et rettvisende bilde av den finansielle stilling til konsernet SIMULA RESEARCH LABORATORY AS per 31. desember 2016 og av konsernets resultater og kontantstrømmer for det avsluttede regnskapsåret i samsvar med regnskapslovens regler og god regnskapsskikk i Norge.

Årsregnskapet består av:

- selskapsregnskapet, som består av balanse per 31. desember 2016, resultatregnskap og kontantstrømoppstilling for regnskapsåret avsluttet per denne datoen og noter, herunder et sammendrag av viktige regnskapsprinsipper, og
- konsernregnskapet som består av balanse per 31. desember 2016, resultatregnskap og kontantstrømoppstilling for regnskapsåret avsluttet per denne datoen og noter, herunder et sammendrag av viktige regnskapsprinsipper.

Grunnlag for konklusjonen
Vi har gjennomført revisjonen i samsvar med lov, forskrift og god revisjonsskikk i Norge, herunder de internasjonale revisjonsstandardene (ISA-ene). Våre oppgaver og plikter i henhold til disse standardene er beskrevet i Revisors oppgaver og plikter ved revisjon av årsregnskapet. Vi er uavhengige av selskapet slik det kreves i lov og forskrift, og har overholdt våre øvrige etiske forpliktelser i samsvar med disse kravene. Etter vår oppfatning er innhentet revisjonsbevis tilstrekkelig og hensiktsmessig som grunnlag for vår konklusjon.

Øvrig informasjon
Ledelsen er ansvarlig for øvrig informasjon. Øvrig informasjon består av årsberetningen, men inkluderer ikke årsregnskapet og revisjonsberetningen.

Vår uttalelse om revisjonen av årsregnskapet dekker ikke øvrig informasjon, og vi attesterer ikke den øvrige informasjonen.

I forbindelse med revisjonen av årsregnskapet er det vår oppgave å lese øvrig informasjon med det formål å vurdere hvorvidt det foreligger vesentlig inkonsistens mellom øvrig informasjon og årsregnskapet, kunnskap vi har opparbeidet oss under revisjonen, eller hvorvidt den tilsynelatende

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inneholder vesentlig feilinformasjon. Dersom vi hadde konkludert med at den øvrige informasjonen inneholder vesentlig feilinformasjon er vi pålagt å rapportere det. Vi har ingenting å rapportere i så henseende.

Styrets og daglig leders ansvar for årsregnskapet
Styret og daglig leder er ansvarlig for å utarbeide årsregnskapet i samsvar med lov og forskrifter, herunder for at det gir et rettvisende bilde i samsvar med regnskapslovens regler og god regnskapsskikk i Norge. Ledelsen er også ansvarlig for slik intern kontroll som den finner nødvendig for å kunne utarbeide et årsregnskap som ikke inneholder vesentlig feilinformasjon, verken som følge av misligheter eller utilsiktede feil. Ved utarbeidelsen av årsregnskapet må ledelsen ta standpunkt til selskapets evne til fortsatt drift og opplyse om forhold av betydning for fortsatt drift. Forutsetningen om fortsatt drift skal legges til grunn for årsregnskapet så lenge det ikke er sannsynlig at virksomheten vil bli avviklet.

Revisors oppgaver og plikter ved revisjonen av årsregnskapet
Vårt mål er å oppnå betryggende sikkerhet for at årsregnskapet som helhet ikke inneholder vesentlig feilinformasjon, verken som følge av misligheter eller utilsiktede feil, og å avgi en revisjonsberetning som inneholder vår konklusjon. Betryggende sikkerhet er en høy grad av sikkerhet, men ingen garanti for at en revisjon utført i samsvar med lov, forskrift og god revisjonsskikk i Norge, herunder ISA-ene, alltid vil avdekke vesentlig feilinformasjon som eksisterer. Feilinformasjon kan oppstå som følge av misligheter eller utilsiktede feil. Feilinformasjon blir vurdert som vesentlig dersom den enkeltvis eller samlet med rimelighet kan forventes å påvirke økonomiske beslutninger som brukerne foretar basert på årsregnskapet.

For videre beskrivelse av revisors oppgaver og plikter vises det til
https://revisorforeningen.no/revisjonsberetninger

Uttalelse om øvrige lovmessige krav

Konklusjon om årsberetningen
Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, mener vi at opplysningene i årsberetningen om årsregnskapet og forutsetningen om fortsatt drift er konsistente med årsregnskapet og i samsvar med lov og forskrifter.

Konklusjon om registrering og dokumentasjon
Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, og kontrollhandlinger vi har funnet nødvendig i henhold til internasjonal standard for attestasjonsoppdrag (ISAE) 3000 «Attestasjonsoppdrag som ikke er revisjon eller forenklet revisorkontroll av historisk finansiell informasjon», mener vi at ledelsen har oppfylt sin plikt til å sørge for ordentlig og oversiktlig registrering og dokumentasjon av selskapets regnskapsopplysninger i samsvar med lov og god bokføringsskikk i Norge.

Oslo, den 8. mars 2017

Erik A. Bell
Statsautorisert revisor

Social Responsibility and Workplace Environment

Simula Research Laboratory is a nonprofit public utility enterprise. The company contributes to society by engaging in basic long-term research within the fields of communication systems, scientific computing, and software engineering. In addition, Simula conducts education and fosters innovation on basis of the research.

To reach its goals, Simula Research Laboratory (Simula) is continuously working to ensure good working conditions. The following summary highlights some of the topics Simula is addressing in order to maintain and develop its standards within ethics, gender balance, and general working conditions.

Ethics
Maintaining high ethical standards has a value in itself for both Simula and each individual employee, and as a part of Simula's responsibility as a contributor to Norwegian society, it is a fundament for trust from the outside world. Simula's code of ethics is developed with the purpose to increase awareness of, and compliance with, the high ethical standards required of the employees. The code of ethics includes topics such as research ethics; the working environment and inclusion; gifts, enticements and corruption; confidentiality; and conflicts of interest.

Equality and diversity
It is an important objective for Simula to be a workplace where men and women are given the same opportunities for professional and personal development. In order to strengthen the focus and to follow up on the promising results shown in our previous work [1] on improving the gender balance, Simula will continue to focus on initiatives for both recruiting new and talented female candidates, and for developing and further adapting the working environment.

Simula's workplace is diverse in both cultural and national origin, and currently more than 58 per cent of the employees are from countries outside Norway. The employees represent 32 different nationalities. Simula takes different measures to make the transition to a Norwegian workplace effective and positive, including administrative support and Norwegian language training.

Working environment
Simula aspires to be an excellent workplace. This will be ensured through an internal

inspection system that addresses health, safety and the working environment. The Working Environment Committee at Simula makes efforts to develop and maintain the quality of the working environment. It participates in planning, and follows up questions concerning the safety, health and welfare of the employees.

Absence due to illness is in general low at Simula, and the illness absence rate per 31.12.2016 was 1.7 % in Simula Research Laboratory, Simula School of Research and Innovation, Simula Innovation, Simula@UiB and Kalkulo combined.

The results of a working environment survey conducted in 2014 were overall very good and confirmed that the working environment is in a good condition and that the employees enjoy working at Simula. Workplace surveys will be conducted on a regular basis.

Simula has entered into an agreement with NAV (the Norwegian Labour and Welfare Organisation) concerning "the inclusive workplace". The purpose of the agreement is to prevent and reduce absence related to illness, improve job attendance, improve the working environment, as well as avert exclusion and withdrawal from working life. Simula had one individual in workplace training over four weeks as part of this agreement. An action plan with focus on how Simula addresses these matters is discussed with NAV annually.

Competence development and recruitment
Simula is dependent on competent and motivated employees with specific expertise in order to reach its targets. Simula works continuously to attract, develop and retain talented employees with varied backgrounds. Simula's leaders play a key role with respect to Simula's results. Simula facilitates professional and personal development to enhance expertise. In 2016, several of Simula's project leaders have taken part

42% Norway

9% America

32% Europe

16% Asia

1% Oceania
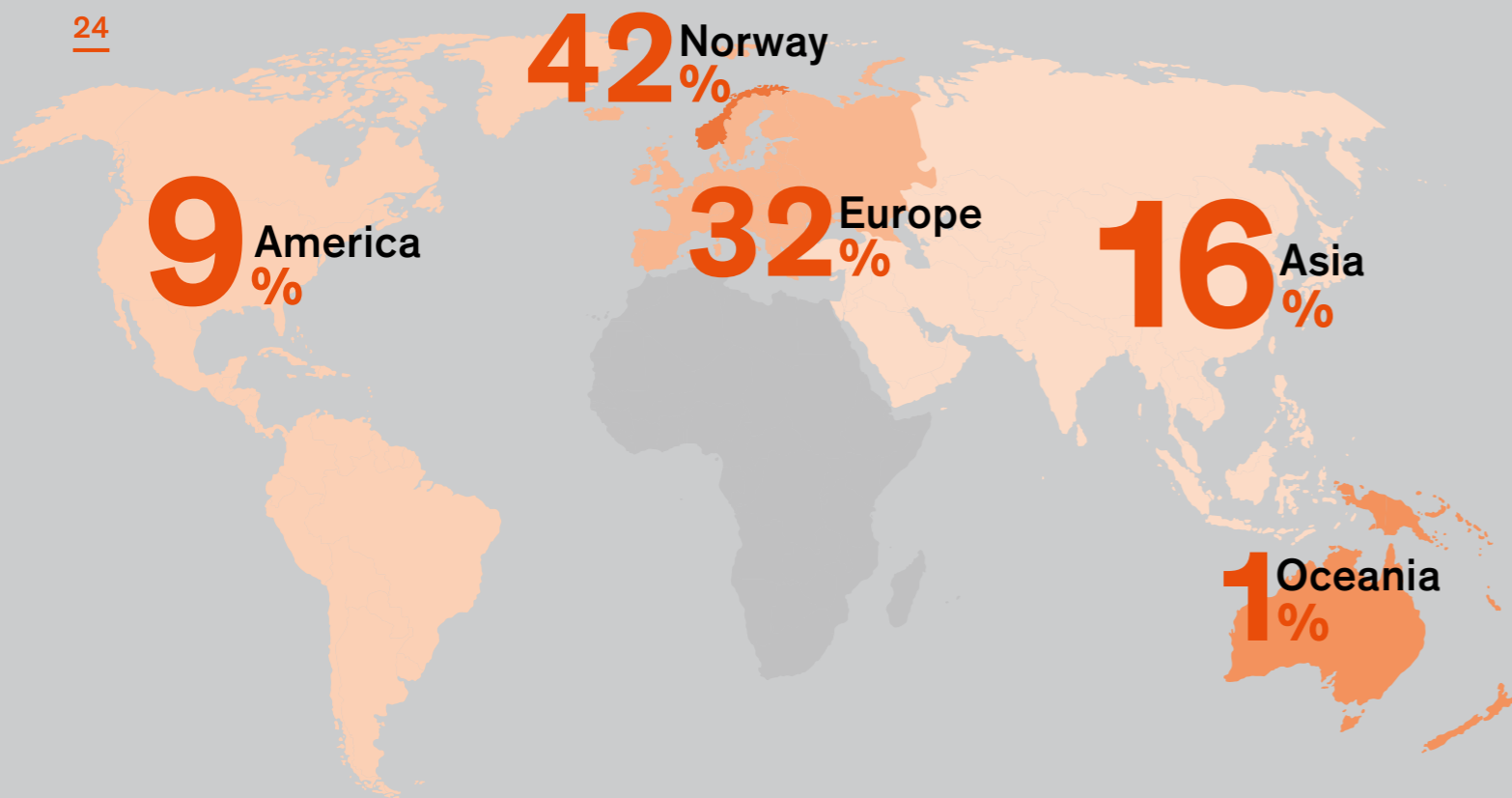
Nationalities

Simula is proud of its inter-national environment and cultural diversity, employing 151 exceptional minds from 32 different nationalities.

PhD candidates
27%

23%

27%

33%

28%

29%

32%

33%

29%

Post docs
21%

21%

26%

28%

28%

27%

Average
19%

19%

22%

26%

24%

25%

22%

Research Scientists
0%

13%

13%

14%

20%

2010

2011

2012

2013

2014

2015
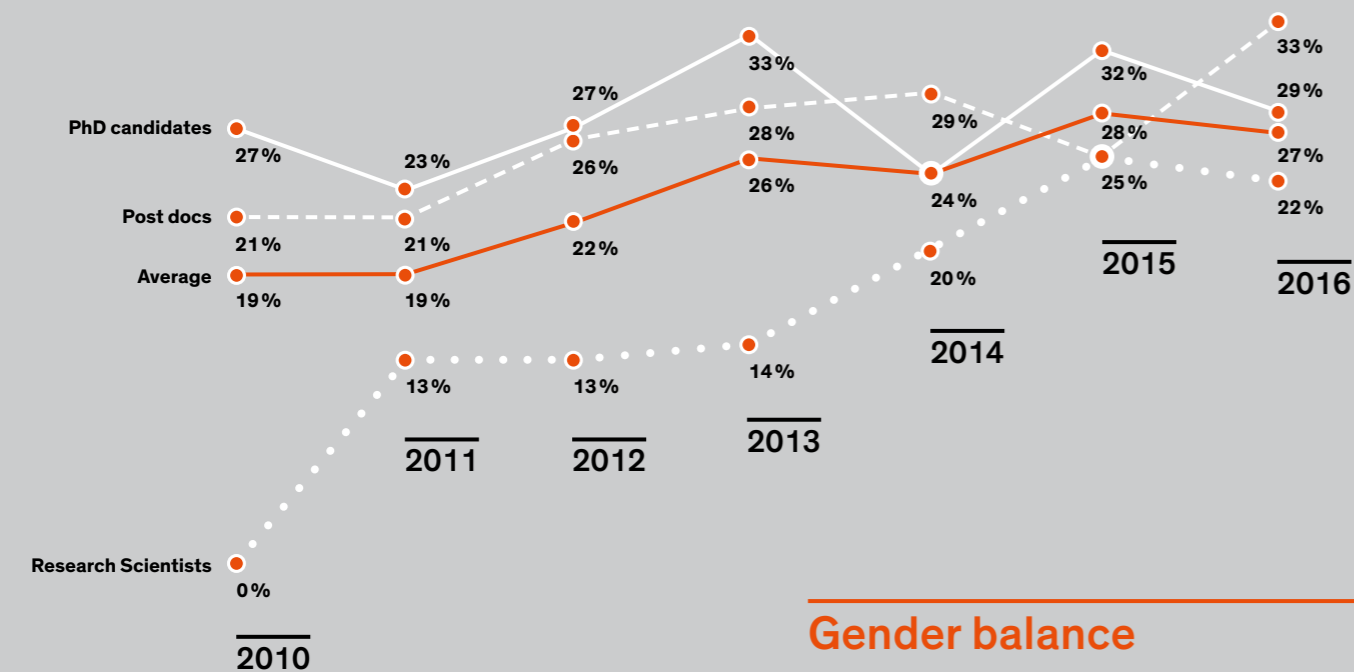
2016

Gender balance

Simula aims to have at least 30 per cent female employees in scientific positions by 2017.

All numbers as of 31.12.2016

in training provided by internationally renowned institutions such as the Wharton School at the University of Pennsylvania and London Business School. In addition, a development course has also been offered internally and several members of the staff took part.

Conflict resolution and notification of censurable conditions
Simula will ensure a safe and secure working environment in accordance with the company's principles on workplace culture. Simula has developed guidelines for conflict resolution and notification, meeting all the requirements in the personnel guidelines and the Working Environment Act. These guidelines encourages employees to take an active role in creating a working environment in which conflict is handled in an open, honest and constructive way, and in trying to prevent destructive forms of conflict from arising.

External environment
Simula's activities do not pollute the external environment. In addition, Simula encourages environmentally responsible behavior through the way the company is run. Simula has a program for employees that choose not to drive a car to the work-place, by financially supporting their use of public transport. In 2016, 60 per cent of the employees were signed up for the program. Additionally, Simula had a goal of being paper-free during the period 2010–2015, in the sense that all administrative processes would be digitized and the total consumption of paper per person in the l ab should be halved. The measures led to a digitised process and a significant reduction in paper consumption since 2010, as well as an increased awareness among employees.

Doctorates and Master's Degrees

As of December 31, 2016

This list presents MSc and PhD degrees awarded by the University of Oslo and other degree awarding institutions in Norway and abroad. The degrees are obtained by candidates that are supervised throughout their projects by Simula researchers.

Master's Degrees

Student	Title of thesis	Supervisors	Co-supervisor(s)	Institution
Andreas Alexander Gansen	A 3D stateroom editor	Carsten Griwodz	Pål Halvorsen	UiO - Department of Informatics
Aslak Wigdahl Bergersen	Investigating the Link Between Patient-specific Morphology and Hemo-dynamics: Implications for Aneurism Initiation?	Kristian Valen-Sendstad	Martin Sandve Alnæs/ Mikael Mortensen, UiO	UiO - Department of Mathematics
Atle Nordland	Compression of 3D media for internet transmission	Carsten Griwodz	Pål Halvorsen	UiO - Department of Informatics
Elisabeth Topnes	Computational Modelling of cardiac mechanics	Joakim Sundnes	Anton Evgrafov, NTNU/ Allan Engsig-Karup, DTU	NTNU - Norwegian University of Science and Technology
Jakob Schreiner	Computational Fluid Dynamics Modelling of Cerebrospinal Fluid Flow In Patient Specific Geometries. Comparisons With in vivo Measurements	Kent-André Mardal	Erika Lindstrøm	UiO - Department of Mathematics
Jan-Ole Bårdevik	Introducing New Context Features in the TRIO system	Pål Halvorsen	Carsten Griwodz	UiO - Department of Informatics
Jonas Van Den Brink	Modeling Atrial Fibrillation - Exploring the Koivumäki Human Atrial Cell Model	Molly Maleckar	Morthen Hjorth-Jensen, UiO/ Jussi Koivumäki, University of Eastern Finland	UiO - Department of Physics
Katrin Stollenmaier	Modelling of intra- and extracellular flow and transport processes	Kent-André Mardal	Karl Erik Holter, Simula / Rainer Helmig, Tobias Köppl and Timo Koch, University of Stuttgart	University of Stuttgart
Mequannint Munye Zeru	Exploring InfiniBand Congestion Control In Mesh Topologies	Ernst Gunnar Gran	Boning Feng, HiOA	UiO - Department of Informatics
Nasir Abbas	Mobile Edge Computing: A Survey	Tor Skeie	Yan Zhang	UiO - Department of Informatics

Student	Title of thesis	Supervisors	Co-supervisor(s)	Institution
Niklas Jacobsen	LLVM supported source-to-source translation - translation from annotated C/C++ to CUDA C/C++	Xing Cai Xing Cai	Mohammed Sourouri	UiO - Department of Informatics
Peder Lynes Thorup	A testbed to compare Dynamic Adaptive Streaming over HTTP network configurations	Carsten Griwodz	Pål Halvorsen	UiO - Department of Informatics
Pratik Timalsena	Understanding Network Performance Bottlenecks	Ahmed Elmokashfi	Andreas Petlund	UiO - Department of Informatics
Shayan Yazdanmehr	Introduction to Intel's Threading Building Blocks	Xing Cai		UiO - Department of Informatics
Shifteh Sherafat	Simuleringer av blodstrøm i blodårer basert på samspillet mellom lagene i blodåren	Kent-André Mardal	Simon Funke	UiO - Department of Mathematics
Sigurhjörtur Snorrason	Processing Multimedia Workloads with Intel Many Integrated Core Architecture: A comparative study with work scheduling	Håkon Kvale Stensland	Carsten Griwodz	UiO - Department of Informatics
Tor Christian Tangenes	Evaluating CAIA delay gradient as a Less-than-best-effort congestion control in Linux	Andreas Petlund	David Hayes, David Ros	UiO - Department of Informatics
Vegard Vinje	Simulating Cerebrospinal Fluid Flow and Spinal Cord Movement Associated with Syringomyelia	Kent-André Mardal	Marie Elisabeth Rognes, Victor Haughton	UiO - Department of Mathematics
Vetle Christoffer Torpmann-Hag Frostelid	Non-intrusive experimental investigation of flow in complex aneurysmal geometries	Kent-André Mardal	Atle Jensen	UiO - Department of Mathematics
Waqas Moazzam Butt	Scientific Hangman: A Framework to Gamify Scientific Evidence for the General Public	Sagar Sen	Magne Jørgensen	UiO - Department of Informatics
Yapi Donatien Achou	Dispersed Two-Phase Flow Simulation and Parameters Optimisation	Xing Cai	Knut Martin Mørken	UiO - Department of Mathematics

Student	Title of thesis	Supervisors	Co-supervisor(s)	Institution
Erik Rogstad	Automated regression testing of database applications	Lionel Briand (Univ. of Luxemborg)	Arnaud Gotlieb	UiO - Department of Informatics
Kjetil Raaen	Response time in games : requirements and improvements	Andreas Petlund	Carsten Griwodz, Pål Halvorsen	UiO - Department of Informatics
Pengpeng Ni	Visual Perception of Scalable Video Streaming: Applied to Mobile Scenarios	Carsten Griwodz	Pål Halvorsen	UiO - Department of Informatics
Vamsidhar Reddy Gaddam	Next Generation Broadcasting System for Arena Sports : A Football Stadium Scenario	Pål Halvorsen	Carsten Griwodz	UiO - Department of Informatics

List of Publications 2016

Simula only reports publications where a significant part of the research has been funded by Simula. This means that at least one of the authors of the reported publications must have his / her main affiliation and has contributed to the publication as specified in Simula's publication guidelines. Publications from people in part-time positions are generally not included unless the research is specifically performed as part of their employment at Simula.

Articles in international journals

01 **A cut discontinuous Galerkin method for the Laplace–Beltrami operator**
Erik Burman, Peter Hansbo, Mats G. Larson, Andre Massing,
IMA Journal of Numerical Analysis, vol. 37, p. 138-169, issue 1

02 **A guide to uncertainty quantification and sensitivity analysis for cardiovascular applications**
Vinzenz Gregor Eck, W. P. Donders, Jacob Sturdy, Jonathan Feinberg, T. Delhaas, Leif Rune Hellevik,
International Journal for Numerical Methods in Biomedical Engineering, vol. 32, issue 8

03 **A statistical shape modelling framework to extract 3D shape biomarkers from medical imaging data: Assessing arch morphology of repaired coarctation of the aorta**
Jan L. Bruse, Kristin Sarah Mcleod, Giovanni Biglino, Hopewell N. Ntsinjana, Claudio Capelli, Tain-Yen Hsia, Maxime Sermesant, Xavier Pennec, Andrew M. Taylor, Silvia Schievano,
BMC Medical Imaging

04 **A Survey on the Characteristics of Projects with Success in Delivering Client Benefits**
Magne Jørgensen,
Information and Software Technology, vol. 78, p. 83-94

05 **A Systematic Test Case Selection Methodology for Product Lines: Results and Insights From an Industrial Case Study**
Shuai Wang, Shaukat Ali, Arnaud Gotlieb, Marius Liaaen,
Empirical Software Engineering, vol. 21, p. 1586-1622, issue 4

06 **A three-dimensional coupled Nitsche and level set method for electrohydrodynamic potential flows in moving domains**
A. Johansson, M. Garzon, J. A. Sethian,
Journal of Computational Physics, vol. 309, p. 88-111

07 **Accelerating Detailed Tissue-Scale 3D Cardiac Simulations Using Heterogeneous CPU-Xeon Phi Computing**
Johannes Langguth, Qiang Lan, Namit Gaur, Xing Cai,
International Journal of Parallel Programming, p. 1-23

08 **Adjoint Multi-Start Based Estimation of Cardiac Hyperelastic Material Parameters using Shear Data**
Gabriel Balaban, Martin Sandve Alnæs, Joakim Sundnes, Marie E. Rognes,
Biomechanics and Modeling in Mechanobiology, p. 1-13

09 **Analyzing and Visualizing Information Flow in Heterogeneous Component-Based Software Systems**
Analyzing and Visualizing Information Flow in Heterogeneous Component-Based Software Systems,
Information and Software Technology, vol. 77, p. 34-55

10 **Assessing the Quality of Industrial Avionics Software: An Extensive Empirical Evaluation**
Ji Wu, Shaukat Ali, Tao Yue, Jie Tian, Chao Liu,
Empirical Software Engineering

11 **Association of pulse pressure gradient across cranio-cervical junction as derived from phase-contrast magnetic resonance imaging and invasively measured pulsatile intracranial pressure in symptomatic patients with Chiari malformation type 1**
Radek Fric, Erika Kristina Lindstrøm, Geir Ringstad, Kent-Andre Mardal, Per Kristian Eide,
Acta Neurochirurgica, vol. 158, issue 12

12 **Better Selection of Software Providers Through Trialsourcing**
Magne Jørgensen,
IEEE Software, vol. 33, p. 48-53, issue Sept-Oct

13 **Building trust in e-government services**
Kjell Jørgen Hole,
IEEE Computer, vol. 49, p. 66-74, issue 1

14 **Compact Network Reconfiguration in Fat-Trees**
Feroz Zahid, Ernst Gunnar Gran, Bartosz Bogdanski, Bjørn Dag Johnsen, Tor Skeie, Evangelos Tasoulas,
The Journal of Supercomputing, vol. 72, p. 4438–4467, issue 12

15 **Component-Based Modelling for Scalable Smart City Systems Interoperability: A Case Study on Integrating Energy Demand Response Systems**
Esther Palomar, Xiaohong Chen, Zhiming Liu, Sabita Maharjan, Jonathan Bowen,
Sensors, vol. 16, issue 11

16 **Computational Investigation of Cerebrospinal Fluid Dynamics in the Posterior Cranial Fossa and Cervical Subarachnoid Space in Patients with Chiari I Malformation**
Karen Støverud, Hans Petter Langtangen, Geir A. Ringstad, Per Kristian Eide, Kent-Andre Mardal,
PLOS ONE

17 **Computational rabbit models to investigate the initiation, perpetuation, and termination of ventricular arrhythmia**
Hermenegild Arevalo, Patrick M. Boyle, Natalia A. Trayanova,
Progress in Biophysics and Molecular Biology, vol. 121, p. 185-194, issue 2

18 **Computing rates of Markov models of voltage-gated ion channels by inverting partial differential equations governing the probability density functions of the conducting and non-conducting states**
Aslak Tveito, Glenn Terje Lines, Andrew Edwards, Andrew D. McCulloch,
Mathematical Biosciences, vol. 277, p. 126-135

19 **Conditions on optimal support recovery in unmixing problems by means of multi-penalty regularization**
Markus Grasmair, Valeriya Naumova,
Inverse Problems, vol. 32, issue 10

20 **Cost-effective Strategies for the Regression Testing of Database Applications: Case study and Lessons Learned**
Erik Rogstad, Lionel Briand,
Journal of Systems and Software, vol. 113, p. 257–274

21 **Cultural characteristics and their connection to increased risk of software project failure**
Magne Jørgensen, Aiko Yamashita,
Journal of Software, no. 6, vol.11, p.606-614

22 **Demand Response Management in the Smart Grid in a Large Population Regime**
Sabita Maharjan, Quanyan Zhu, Yan Zhang, Stein Gjessing, Tamer Basar,
IEEE Transactions on Smart Grid, vol. 7, p. 189-199, issue 1

23 **De-ossifying the Internet transport layer: A survey and future perspectives**
Georgios Papastergiou, Gorry Fairhurst, David Ros, Anna Brunström, Karl-Johan Grinnemo, Per Hurtig, Naeem Khademi, Michael Tüxen, Michael Welzl, Dragana Damjanovic, Simone Mangiante,
IEEE Communications Surveys and Tutorials

24 **Design optimisation and resource assessment for tidal-stream renewable energy farms using a new continuous turbine approach**
Simon W. Funke, Stephan C. Kramer, Matthew David Piggott,
Renewable Energy, vol. 99, p. 1046-1061

25 **Direct numerical simulations of transitional hydrodynamics of the cerebrospinal fluid in Chiari I malformation – the role of cranio-vertebral junction**
Kartik Jain, Geir Ringstad, Per-Kristian Eide, Kent-Andre Mardal,
International Journal for Numerical Methods in Biomedical Engineering

26 **Distributed Estimation in Wireless Sensor Networks With an Interference Canceling Fusion Center**
Antonios Argyriou, Özgü Alay,
IEEE Transactions on Wireless Communication, vol. 15, p. 2205-2214, issue 3

27 **Efficient Network Isolation and Load Balancing in Multi-Tenant HPC Clusters**
Feroz Zahid, Ernst Gunnar Gran, Bartosz Bogdanski, Bjørn Dag Johnsen, Tor Skeie,
Journal of Future Generation Computer Systems

28 **Energy-efficient Offloading for Mobile Edge Computing in 5G Heterogeneous Networks**
Ke Zhang, Yuming Mao, Supeng Leng, Quanxin Zhao, Longjiang Li, Xin Peng, Li Pan, Guoyun Zhang, Sabita Maharjan, Yan Zhang,
IEEE Access, vol. 4, p. 5896-5907

29 **Exploiting Binary Floating-Point Representations for Constraint Propagation**
Roberto Bagnara, Matthieu Carlier, Roberta Gori, Arnaud Gotlieb,
INFORMS Journal of Computing (JoC), vol. 28, p. 31-46, issue 1

30 **High Performance {Python} for Direct Numerical Simulation of Turbulent Flows**
Mikael Mortensen, Hans Petter Langtangen,
Computer Physics Communications, vol. 203, p. 53-65

31 **How Successful is Successful? Aortic Arch Shape Following Successful Aortic Coarctation Repair Correlates with Left Ventricular Function**
Jan L. Bruse, Abbas Khushnood, Kristin Sarah Mcleod, Giovanni Biglino, Maxime Sermesant, Xavier Pennec, Andrew M. Taylor, Tain-Yen Hsia, Silvia Schievano,
The Journal of Thoracic and Cardiovascular Surgery, vol. 153, p. 418-427, issue 2

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Hamburg/Germany, Hamburg/Germany

89 NorNet at NICTA – An Introduction to the NorNet Testbed
Thomas Dreibholz,
Sydney, New South Wales/Australia, National Information Communications Technology Australia (NICTA)

90 NorNet at the Haikou College of Economics – An Introduction to the NorNet Testbed
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91 On accurate and efficient simulations of multiple-network poroelastic modelling with applications to interstitial fluid flow in the human brain
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93 Optimal Performance Tuning in Real-Time Systems Using Multi-objective Constrained Optimization
Stefano "Di Alesio",
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94 Optimization Problems on Dynamical Domains with Non-Matching Meshes
Jørgen Schartum Dokken, editor: August Johansson, Simon W. Funke,
29th Nordic Seminar on Computational mechanics

Posters

Public outreach

Other publications

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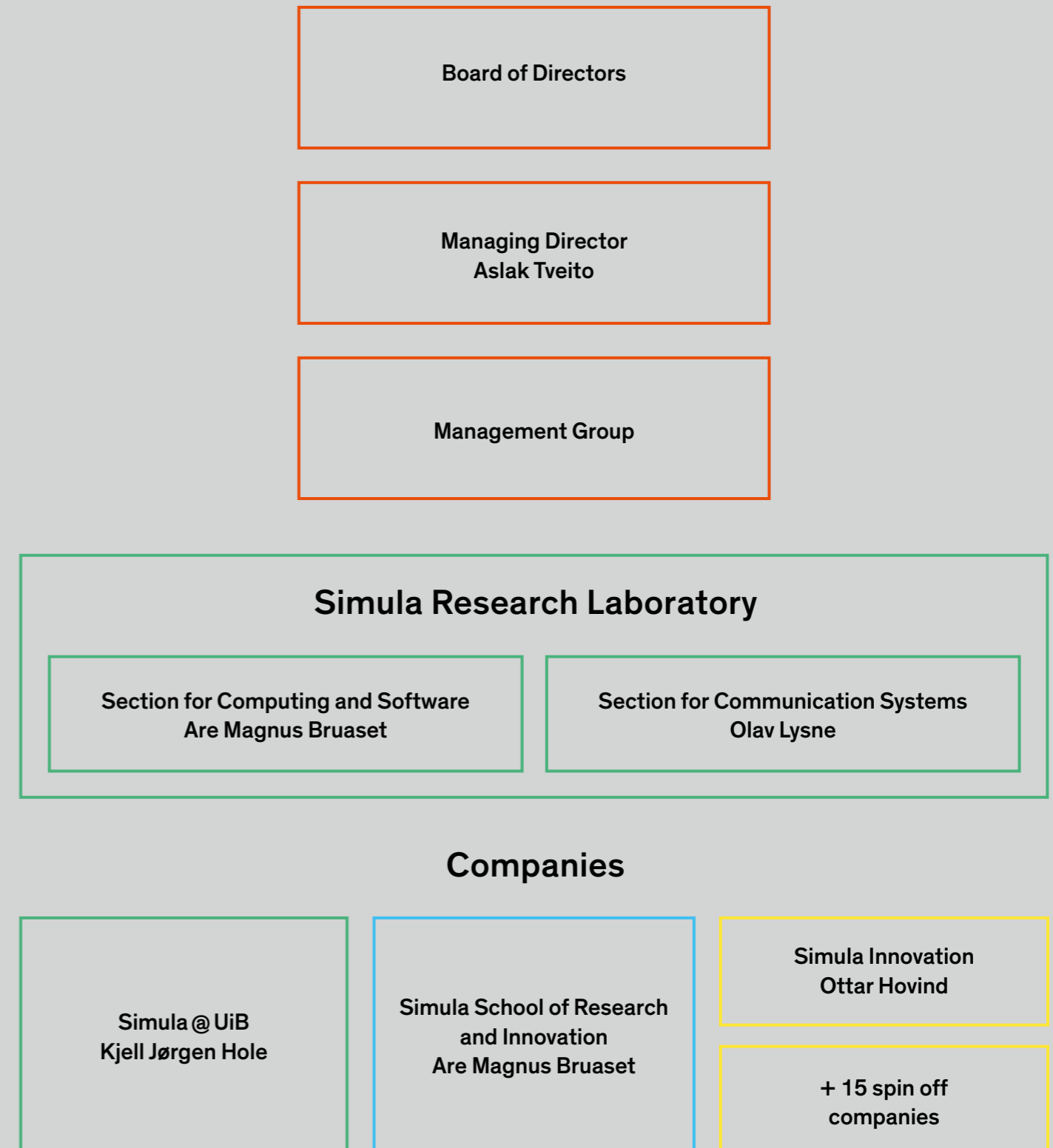Konstantina (Dina) Papagiannaki, Maha Abdallah, Torsten Hoefler, Kristian Gjøsteen

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