

CURRICULUM VITAE

NAME Ole Jakob Elle
ADDRESS Omsensgate 14, 0478 Oslo
TLF. PRIV. 91171790
E-MAIL ole.jakob.elle@rikshospitalet.no
TLF. WORK 23070112
BIRTH 12.04.67

Research profile: Major scientific contributions include developments in a) Image guided surgery, Image navigation, Sensor control and haptic feedback in Robotic surgery and Biosensor development and monitoring b) has established a broad international network within image guided surgery, both academic and industrial through participation and coordination of the contribution from The Intervention Centre, OUS as a partner in four EU-funded projects (ARISER-Augmented Reality in Surgery, SCath-Smart Catheterization, IIIOS-Integrated Intraoperative Imaging Operating System, I-SUR – Intelligent Surgical Robotics). A strong national collaboration has been established with NTNU and Medical Technology at Sintef in image guided surgery. Ole Jakob Elle has been committee member for several national seminars in medical technology as well as for Society for Minimally Invasive Technology (SMIT 2002) c) Awarded for papers in Journal of Physiological Measurement and Journal of Sensor Review. He is reviewer for IEEE International Conference on Robotics and Automation.

EDUCATION

2004 : PhD (Dr.Eng) – Sensor Control in Robotic Surgery
1992-1995 : PhD (Dr.Eng) fellow at Department of Production and Quality engineering, Norwegian University of Science and Technology (NTNU)
1986-90 : Master in Mechanical Engineering, NTNU
Mark : average 1.8
Master thesis: Automatic/Interactive robot programming (Mark. 1.25)

WORK EXPERIENCE

2008- Adjunct Associate Professor at Department of Informatics, University of Oslo (20% position)
2007- Section manager – Technology at The Interventional Centre, Rikshospitalet University Hospital
2005-2007 Section manager – Technology at The Interventional Centre, Rikshospitalet University Hospital
1998- Researcher at The Interventional Centre at Rikshospitalet University Hospital
1996-1998 Product developer at LUXO AS (Ideas as 3D design tool)
1995/96: Researcher at SINTEF Production Technology
1991: Military Service at Department of Biomedical Engineering, Trondheim Hospital
Mechanical design of prototypes for 3D-ultrasound probes (AutoCad - design tool)
1990: Summer work - MultiCraft A/S

ACADEMIC WORK

- Lecturing an Introductory course in Robotics at Department of Informatics
- Master Thesis Co-adviser for 10 MSc. Students in robot and robot related areas
- PHD Main Supervisor for six candidates, four in image guided surgery, two in medical robotics and PhD Co-adviser for several candidates
- Post-doc. Adviser for two candidate
- Second opponent for a PhD-defence “ Virtual Palpation Gripper” by Maria Ottermo, 2006
- Second opponent for a PhD-defence “ 3D ultrasound based neuronavigation in neurosurgery – a clinical evaluation” by Ola M. Rygh, 2008
- Evaluation committee for PhD-evaluation and defence “Technological contributions to augmented reality in minimally invasive surgery” by Mauro Sette 2010
- Second opponent for a PhD-defence “ 3D ultrasound and navigation – Applications in laparoscopic surgery” by Ole Vegard Solberg, 2011
- Project manager on several NFR-projects

- Coordinating activity and scientific responsible coordinator from The Interventional Centre in 3 EU-projects (IIOS, SCath, I-SUR)
- Coordinator of the ITN-project “HiPerNav” – High Performance soft-tissue Navigation, 2016

AWARDS

- Highlights of Physiological Measurement for the paper “Early recognition of Regional cardiac ischemia using a 3-axis accelerometer sensor” in the Journal “Physiological Measurement” from Institute of Physics (IOP) in 2005
- Highly Commended Award for the paper “Fabrication of a MEMS accelerometer to detect heart bypass surgery complications” in the Journal “Sensor Review” Vol. 29 No. 4, 2009
- Placed on the 2nd. For the “Medinnovas prize for best ideas” in 2006 for the idea “Improved monitoring for heart surgery”

PUBLICATIONS : 51 Papers in national and international journals and conferences (Publications in Pubmed: 30, Citations: 77, G-Index: 8, H-Index: 6), (Publications in ISI web of Knowledge: 51)

PhD-Thesis

- Elle, O.J. : Sensor Control in Robotic Surgery, PhD-thesis, 2004:27, ISBN 82-471-6257-1, Tapir forlag 2004

Publications (2011-2016):

1. Kim Mathiassen, Jørgen Enger Fjellin, Kyrre Glette, Per Kristian Hol and Ole Jakob Elle. **An Ultrasound Robotic System Using the Commercial Robot UR5**, *Frontiers in Robotics and AI*, vol 3, 2016
2. Kim Mathiassen, Kyrre Glette, and Ole Jakob Elle **Visual Servoing of a Medical Ultrasound Probe for Needle Insertion**, *Robotics and Automation (ICRA)*, 2016 IEEE International Conference on, May 2016
3. Riccardo Muradore, Paolo Fiorini, Gokhan Akgun, Duygun Erol Barkana, Marcello Bonfe, Fabrizio Boriero, Andrea Caprara, Giacomo De Rossi, Riccardo Dodi, Ole Jakob Elle, Auralius Oberman Manurung, Giovanni Meruzzi, Ho Quoc Phuong Nguyen, Nicola Preda, Gianluca Riolfo, Asko Ristolainen, Alberto Sanna, Cristian Secchi, Marco Torsello, Asim Evren Yantac. **Development of a Cognitive Robotic System for Simple Surgical Tasks.**, *International Journal of Advanced Robotic Systems* 04/2015; 12. DOI:10.5772/60137
4. I. Schalit, A. Espinoza, G. Sørensen, A.E. Fiane, T.N. Hoel, E. Gude, H. Skulstad, A.S. Thiara, O.J. Elle, E. Fosse, P.S. Halvorsen, **LVAD Thrombosis Detection Using Third Harmonic Frequency Measured With 3D Accelerometer**, *The Journal of Heart and Lung Transplantation* 34(4):S214-S215, April 2015
5. Kaiser M, Detert M, Rube MA, El-Tahir A, Elle OJ, Melzer A, Schmidt B, Rose GH. **Resonant marker design and fabrication techniques for device visualization during interventional magnetic resonance imaging.**, *Biomed Tech (Berl)*. 2015 Apr 1;60(2):89-103. doi: 10.1515/bmt-2013-0097.
6. Kumar RP, Albregtsen F, Reimers M, Edwin B, Langø T, Elle OJ. **Three-Dimensional Blood Vessel Segmentation and Centerline Extraction based on Two-Dimensional Cross-Section Analysis.**, *Ann Biomed Eng*. 2014 Nov 15.
7. Bergsland J, Elle OJ, Fosse E. **Barriers to medical device innovation.** *Med Devices (Auckl)*. 2014 Jun 13;7:205-9. PMID: 24966699
8. Eldirdiri A, Courivaud F, Palomar R, Hol PK, Elle OJ. **Catheter tip tracking for MR-guided interventions using discrete Kalman filter and mean shift localization.**, *Int J Comput Assist Radiol Surg*. 2014 Mar; 9(2):313-22. PMID: 23974979
9. R. P. Kumar, E.-J. Rijkhorst, O. Geier, D. Barratt, and O. J. Elle, **Study on liver blood vessel movement during breathing cycle**, in *Colour and Visual Computing Symposium (CVCS)*, 2013, IEEE, 2013, pp. 1–5.
10. R. P. Kumar, F. Albregtsen, M. Reimers, T. Langø, B. Edwin, and O. J. Elle, **3D multiscale vessel enhancement based centerline extraction of blood vessels**, in *SPIE Medical Imaging*, International Society for Optics and Photonics, 2013, p. 86691X–86691X–9.
11. R. P. Kumar, F. Albregtsen, M. Reimers, B. Edwin, T. Langø and O. J. Elle, **Blood Vessel Segmentation and Centerline Tracking using Local Structure Analysis**, in *IFMBE Proceedings*, 2014.

12. Kim Mathiassen, Diego Dall'Alba, Riccardo Muradore, Paolo Fiorini and Ole Jakob Elle, **Real-Time Biopsy Needle Tip Estimation in 2D Ultrasound Images**, 2013 IEEE International Conference on Robotics and Automation (ICRA), Karlsruhe, Germany, pages 4363–4369, May 6-10, 2013
13. Fernandez-Gutierrez F, Barclay A, Martin T, **Elle OJ**, Houston G, Melzer A (2012) **Workflow for image-guided interventions: Characterisation and Validation. Towards the Integrated Imaging Operating Room of the future**
Biomed Tech (Berl), 57, PubMed [22944926](#)
14. Ho QPN, Kang HJ, Suh YS, **Elle OJ** (2012) **A Platform Stabilization Algorithm Based on Feedforward Visual-Inertial Servoing**
Int. J. Precis. Eng. Manuf., 13 (4), 517-526
15. Naerum E, **Elle OJ**, Hannaford B (2012) **The Effect of Interaction Force Estimation on Performance in Bilateral Teleoperation**
IEEE Trans. Haptics, 5 (2), 160-171
16. Remme EW, Hoff L, Halvorsen PS, Opdahl A, Fosse E, **Elle OJ** (2012) **Simulation model of cardiac three dimensional accelerometer measurements**
Med Eng Phys, 34 (7), 990-8, PubMed [22633656](#)
17. Bergsland J, Mujanovic E, **Elle OJ**, Mirtaheri P, Fosse E (2011) **Minimally invasive repair of the mitral valve: technological and clinical developments**
Minim Invasive Ther Allied Technol, 20 (2), 72-7
PubMed [21417839](#)
18. Greisiger R, Tvete O, Shallop J, **Elle OJ**, Hol PK, Jablonski GE (2011) **Cochlear implant-evoked electrical auditory brainstem responses during surgery in patients with auditory neuropathy spectrum disorder**
Cochlear Implants Int, 12 Suppl 1, S58-60
PubMed [21756475](#)

PATENTS

Active and pending Patents

Patent nr.	Title	Inventors
WO 0169130	Light system for use especially by operating theatre	Erik Fosse Frode Lærum Ole Jakob Elle
NO 20016385	System for monitoring changes in movements of an organ, preferably a heart muscle	Erik Fosse Martin Gulbrandsen Ole Jakob Elle
NO 20023605	Method and device for connecting two tubular organs	Erik Fosse Ole Jakob Elle Sumit Roy
WO2009027522A1	Automated monitoring of myocardial function by ultrasonic transducers positioned on the heart	Ole Jakob Elle, Erik Fosse, Halfdan Ihlen, Andreas Espinoza, Lars Hoff
WO03061473A1	Use of sensor and system for monitoring heart movements	Ole Jakob Elle, Erik Fosse, Martin G. Gulbrandsen
US20080281214A1	Method for estimating cardiac pumping capacity	Ole Jakob Elle, Erik Fosse, Steinar Halvorsen