Curriculum Vitae

Dipl.-Ing. Ingmar Voigt

PERSONAL

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birth Feb. 20th, 1982 at Belzig, Germany

citizenship German

EDUCATION

02/12 – now Research Scientist with Siemens Corporate Research & Technology – Image Analytics and Informatics

02/09 – 01/12 PhD Student at the Pattern Recognition Lab, Department of Computer Science, Friedrich-Alexander University Erlangen-Nuremberg in collaboration with Siemens Corporate Research & Technology – Image Analytics and Informatics in the context of European funded projects THESEUS Medico and Sim-e-Child

topic: *Dynamic Anatomy Modelling with Focus on Mitral Valve*

research interests: Machine Learning, Statistical shape models and Manifolds, Modelling of Cardiac Anatomy & Physiology, Segmentation, Ultrasound & Interventional Imaging, Learning based Distance Functions and Case Retrieval

students mentored & recruited: Etienne Assoumou Mengue, Oliver Taubmann, Michael Hackl, Ke Wang, Michal Parusinski, Jens Wetzl

10/03 – 01/09 Studies at Friedrich-Alexander University Erlangen-Nuremberg

program: Information and Communication Technologies

emphases: digital signal processing, medical image processing, pattern recognition, computer graphics

studienarbeit: *Automated Detection of Parallel Laser Line Projections in Laryngeal Endoscopic High-Speed Image Sequences*

diploma thesis: *Robust Estimation and Representation of Valvular Dynamics from 4D CT and Ultrasound*

PROFESSIONAL EXPERIENCE

09/06 – 06/08 working student at Siemens Corporate Technology - Software & Engineering (CT SE SCR 2 / CT T DE TC4) - application development for visualization, annotation and segmentation of cardiac image data involving machine learning and engineering numerics in C++ in the context of EU funded projects Health-e-Child

04/07 – 07/07 Intern at Siemens Corporate Research, Princeton, NJ, USA: knowledge transfer assignment by Siemens Corporate Technology – Software & Engineering, platform integration of OpenInventor based visualization and cardiac modeling algorithms

11/04 – 05/06 student assistant at University Hospital Erlangen, department of Phoniatrics and Pediatric Audiology. Responsibilities included optimization and porting of a biomechanical model implementation for simulation of vocal fold dynamics from Matlab to C# and development of image processing algorithms for measurements of the vocal tract

PUBLICATIONS

peer reviewed conferences

i. **I. Voigt**, T. Mansi, R. Ionasec, E. Assoumou Mengue, B. Georgescu, J. Hornegger, D. Comaniciu: *Robust Physically-Constrained Modeling of the Mitral Valve and Subvalvular Apparatus,* 14th International Conference on Medical Image Computation and Computer Assisted Intervention (MICCAI) 2011, Toronto

ii. T. Mansi, **I.Voigt**, E. Assoumou Mengue, R. Ionasec, B. Georgescu, D. Comaniciu : *Towards Patient-Specific Finite-Element Simulation of MitralClip Procedure,* 14th International Conference on Medical Image Computation and Computer Assisted Intervention (MICCAI) 2011, Toronto – ***Young Scientist Award***

iii. **I. Voigt**, T. Mansi, V. Mihalef, R. I. Ionasec, A. Calleja, E. Assoumou Mengue, H. Houle, B. Georgescu, J. Hornegger and D. Comaniciu: *Patient-Specific Model of Left Heart Anatomy, Dynamics and Hemodynamics from 4D TEE*: A *First Validation Study* 6th International Conference on Functional Imaging and Modeling of the Heart (FIMH) 2011, New York

iv. **I. Voigt**, D. Vitanovski, R. Ionasec, A. Tsymbal, B. Georgescu, S. Zhou, M. Huber, N. Navab, J. Hornegger and D. Comaniciu: *Learning discriminative distance functions for valve retrieval and improved decision support in valvular heart disease,* SPIE Medical Imaging 2010, San Diego – ***featured in the ePractice.eu library***

v. Stiver, A. Calleja, R. I. Ionasec, **I. Voigt**, P. Thavendiranathan, S. Liu, H. Houle, N. De Michelis, T. Ryan, M. Vannan : *Superior Reproducibility of Automated 3-D Surgical Anatomy of Normal and Abnormal Mitral Valve when Compared to a Manual Approach*, American Society of Echocardiography (ASE) Scientific Sessions 2011, Montreal

vi. Calleja, K. Stiver, P. Thavendiranathan, S. Liu, R. I. Ionasec, **I. Voigt**, H. Houle, N. De Michelis, T. Ryan, M. Vannan: *Automated Quantitative 3-D Echocardiography of The Surgical Mitral Valve Anatomy in Functional Mitral Regurgitation to Guide Mitral Valve Repair*, American Society of Echocardiography (ASE) Scientific Sessions 2011, Montreal

vii. **I. Voigt**, R. I. Ionasec, B. Georgescu, J. Boese, G. Brockmann, J. Hornegger, D. Comaniciu: *Computational Decision Support for Percutaneous Aortic Valve Implantation,* 5th International Workshop on Medical Imaging and Augmented Reality (MIAR) 2010, Bejing

viii. R. Ionasec, **I. Voigt**, V. Mihalef, S. Grbic, D. Vitanovski, Y. Wang, Y. Zheng, Yefeng, J. Hornegger, N. Navab, B. Georgescu, D. Comaniciu: *Patient-specific Modeling of the Heart: Applications to Cardiovascular Disease Management* International Workshop on Statistical Atlases and Computational Models of the Heart: Mapping Structure and Function (STACOM) 2010, Beijing

ix. S. Grbic, R. Ionasec, D. Vitanovski, **I. Voigt**, B. Georgescu, N. Navab, D. Comaniciu: *Complete Valvular Heart Apparatus Model from 4D Cardiac CT,* 13th International Conference on Medical Image Computation and Computer Assisted Intervention (MICCAI) 2010, Bejing – ***Young Investigators Award***

x. **I. Voigt**, R. Ionasec, B. Georgescu, H. Houle, M. Huber, J. Hornegger, D. Comaniciu: *Model-driven physiological assessment of the mitral valve from 4D TEE,* SPIE Medical Imaging 2009, Orlando

xi. R. Ionasec, **I. Voigt**, B. Georgescu, Y. Wang, H. Houle, J. Hornegger, N. Navab, D. Comaniciu: *Personalized Modeling and Assessment of the Aortic-Mitral Coupling from 4D TEE and CT,* 12th International Conference on Medical Image Computation and Computer Assisted Intervention (MICCAI) 2009, London – ***Best Session Poster Award***

xii. T. Mansi, S. Durrleman, B. Bernhardt, M. Sermesant, H. Delingette, **I. Voigt**, P. Lurz, A. Taylor, J. Blanc, Y. Boudjemline, X. Pennec, N. Ayache: *A Statistical Model of Right Ventricle in Tetralogy of Fallot for Prediction of Remodelling and Therapy Planning*, 12th International Conference on Medical Image Computation and Computer Assisted Intervention (MICCAI) 2009, London

xiii. R. Ionasec, Y. Wang, B. Georgescu, **I. Voigt**, N. Navab, D. Comaniciu: *Robust Motion Estimation Using Trajectory Spectrum Learning: Application to Aortic and Mitral Valve Modeling from 4D TEE,* International Conference on Computer Vision 2009, Kyoto

journals

xiv. T. Mansi, **I. Voigt**, B. Leonardi, X. Pennec, S. Durrleman, M. Sermesant, H. Delingette, A. Taylor, Y. Boudjemline, G. Pongiglione, N. Ayache : *A Statistical Model for Quantification and Prediction of Cardiac Remodelling: Application to Tetralogy of Fallot*. IEEE Transactions on Medical Imaging (2011)

xv. R.I. Ionasec, **I. Voigt**, B. Georgescu, Y. Wang, H. Houle, F. Vega-Higuera, N. Navab and D. Comaniciu: *Patient-Specific Modeling and Quantification of the Aortic and Mitral Valves From 4-D Cardiac CT and TEE*. IEEE Transactions on Medical Imaging 9 (2010) No. 29

xvi. V. Mihalef, R. I. Ionasec, P. Sharma, B. Georgescu, **I. Voigt**, M. Suehling, D. Comaniciu: Patient-Specific Modelling of Whole Heart Anatomy, Dynamics and Hemodynamics from 4D cardiac CT Images, Journal of the Royal Society – Interface Focus 2010

xvii. T. Wurzbacher, **I. Voigt**, R. Schwarz, M. Döllinger, U. Hoppe, J. Penne, U. Eysholdt, J. Lohscheller: *Calibration of laryngeal endoscopic high-speed image sequences by an automated detection of parallel laser line projections* Medical Image Analysis 12 (2007) No. 3

intellectual property

xviii. R. Ionasec, **I. Voigt**, Y. Wang, B. Georgescu, H. Houle, D. Comaniciu, F.Vega-Higuera: *Valve Assessment from Medical Diagnostic Imaging Data*, US patent application 2010/0240996

xix. **I. Voigt**, D. Vitanovski, R. Ionasec, A. Tsymbal, B. Georgescu, S. K. Zhou, M. Huber, D. Comaniciu: *Method and System for Medical Decision support using Organ Models and Learning based Discriminative Distance Functions*, US patent application 2011/0191283

xx. D. Zaeuner, R. Ionasec, B. Georgescu, Y. Zheng, D. Comaniciu, **I. Voigt**, J. Boese: *Method and System for Virtual Percutaneous Valve Implantation*, US patent application 2011/0153286

REFERENCES

Available upon request

PRACTICAL SKILLS

- 7 years experience with object oriented software development & engineering with C/C++ & C# in MS Visual Studio
- **Libraries & languages**: OpenGL, OpenInventor, XIP, VXL & VTK, boost, Qt, SOFA, GDCM, DCMTK, Java, Perl, PHP, SVN, GForge

LANGUAGES

German (mother tongue), English (business fluent), French & Russian (beginner)