Amin Katouzian, Ph.D.

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CV last edited: 4/15/2015

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Education

- **Columbia University** — New York, NY
  Ph.D., Biomedical Engineering (Dr. Andrew F. Laine, Advisor) — *2011*
  - Dissertation: "Quantifying Atherosclerosis: IVUS Imaging For Lumen Border Detection And Plaque Characterization"

- **Fairleigh Dickinson University** — New Jersey, NJ
  M.Sc., Electrical Engineering — *2004*

- **Sistan & Baluchestan University** — Zahedan, IRAN
  B.Sc., Electrical Engineering — *1998*

Work Experience

- **i2Sense GmbH** — Munich, Germany
  CEO & Founder — *May 2012 – Present*
  - Led technology development of core medical implantable device hardware. This device provides a novel cost-effective solution for atherosclerosis restenosis monitoring. The technology relies upon multiple MEMS pressure sensors mounted on support structures (i.e. stents) and wireless communication between sensors and a near-body device (i.e. smartphone). Pressure gradient across support structure within vasculature are deployed as an indicator for disease progression.
  - Developed business models, prepared due diligence, and helped set strategic directions for increasing competence and securing seed money.
  - Represented the company by making presentations when approaching to Venture Capitals and Business Angels.
  - Managed Intellectual Property portfolio.
  - Created core team and advisory board.

- **SkinCurate Research Private Limited** — Kharagpur, India
  Honorary Scientific Advisor — *February 2014 - Present*
  - Involved in technology and business development of new smartphone application for diagnosis, imaging, computing, intervention, treatment, and clinical management of skin lesion.

- **Chair for Computer Aided Medical Procedure (CAMP) at TUM** — Munich, Germany
  Senior Research Scientist & Principal Research Scientist — *August 2011 – Present*
  - As Senior Research Scientist: Researched, developed, patented, published, and gave talks as well as lectures on medical image analysis, signal processing, and machine learning.
  - As Senior Research Scientist: Approached industries, initiated collaboration, and defined new mutually interested research projects.
  - As Senior Research Scientist: Designed and partially implemented a multi-modal integrated software for the analysis of pre-, intra-, and post-operative cardiovascular images.

- As Senior and Principal Research Scientist: Wrote proposals, acquired projects and supervised junior research scientists, students and interns to develop novel and state-of-the-art algorithms, meet software deliveries for the projects, as well as to advance research goals.
- As Principal Research Scientist: Helped set strategic directions for research as well as technology development, hiring and acquisition. Represented CAMP internally and externally by making presentations and forging academic, clinical and industrial collaborations. Performed troubleshooting in crisis projects. Performed research and development in areas of disruptive technologies.
- As Senior Research Scientist: Provided management to set targets, resolve employee conflicts, structure the development of soft and technical skills in the group, conduct employee performance reviews and interview prospective hires.

- **Heffner Biomedical Imaging Lab (HBIL) at Columbia University (CU)** New York, NY
  Adjunct Senior Research Scientist *December 2011 – December 2014*
  - Researched, developed, patented, published, and helped transferring a technology to a Startup Company.
  - Forged academic, clinical, and industrial collaborations on several research projects.
  - Helped increase synergy between CAMP and HBIL by defining mutually interested projects and supervising students.

- **Curefab GmbH** Munich, Germany
  Medical Technology Consultant *July 2013 – November 2013*
  - Provided strategic market insight for applications of 3D ultrasound system in patients with carotid atherosclerosis.
  - Led group of 3 people to design and implement segmentation software for carotid and AAA applications.
  - Helped evaluating external technologies and reaching licensing agreement.

- **Heffner Biomedical Imaging Lab (HBIL) at CU** New York, NY
  Graduate Research Assistant *June 2008 – January 2011*
  - Researched, developed, patented, published, and gave talks on applications of medical image analysis and signal processing in patients with coronary atherosclerosis using ultrasound and intravascular ultrasound (IVUS) data.
  - Forged academic, clinical, and industrial collaborations on several research projects.
  - Fellowship from Volcano Corp. (Rancho Cordova, CA) for development of border detection algorithm in IVUS images acquired with high-frequency transducers.
  - Served as teaching assistant for a class on Computational Modeling of Physiological Systems.

- **Ultrasound Elasticity and Imaging Laboratory (UEIL) at CU** New York, NY
  Graduate Research Assistant *January 2005 – May 2008*
  - Researched, developed, patented, published, and gave talks on applications of medical image analysis and signal processing in patients myocardial infarction using MR images as well as patients with coronary atherosclerosis using ultrasound and intravascular ultrasound (IVUS) data.
  - Forged academic, clinical, and industrial collaborations on several research projects with InfraReDx (Burlington, MA) and LightLab Imaging (Westford, MA).
  - Fellowship from Boston Scientific Inc. (Fremont, CA) and Scholarship from Siemens Corporate Research (Princeton, NJ).

- **Electrical Engineering Department at University of Pennsylvania** Philadelphia, PA
  Graduate Research Assistant *September 2004 – December 2004*
  - Researched on wideband synthetic aperture Beamforming and synthetic aperture pulse-echo imaging techniques.
  - Served as teaching assistant for a class on Digital Signal Processing.

Awards

- 2013: Samsung Group Global Research Outreach (GRO) Award, *$100,080 per year up to three years*.
- 2012: Third place, Cardiovascular Imaging: A MICCAI Segmentation Challenge.
- 2008: Volcano Corp. Fellowship, $*78,107*.
- 2007: Siemens Fellowship, *$50,000*.
- 2006: Boston Scientific Corp. Fellowship, *$122,500*.
- 2003: Third place in North New Jersey IEEE student paper presentation contest, graduate category.
- 2002: Colonel Fairleigh Dickinson Scholarship, *$10,000*.
- 2000: The most innovative thesis of academic year of 2000 from Beheshti University, Tehran, Iran.

Research Interests

- Computer Aided Surgery and Diagnosis.
- Augmented Reality in Medical Procedures.
- Computer Vision for Medical Applications.
- Big Data Analysis for Medical Applications.
- Medical Implantable Device.
- Multidimensional Cue Extraction and Pattern Recognition.
- Reconstruction, Registration, Visualization, and Segmentation of medical data.
- Multiscale Analysis.
- Speech Recognition and Perception.

Professional Activities

Editorial:

- **Program Committee**: International Conference on Systems in Medicine and Biology (ICSMB), Kharagpur, India, 2016.
- **Steering Committee**: the 18th International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI)-CVII/STENT** workshop, Munich, Germany, 2015.
- **Co-Chair**: Oral session on *Motion Compensation Methods*, International Symposium on Biomedical Imaging: From Nano to Macro (ISBI), New York, 2015.
- **General Chair**: the 17th International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI)-CVII** workshop, Boston, USA, 2014.
- **Executive Committee**: the 4th International Conference on Information Processing in Computer-Assisted Interventions (**IPCAI**), Heidelberg, Germany, 2013.
- **Program Committee**: the 15th International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**)-CVII, Toronto, Canada, 2011.
- **Reviewer**: Journals: Medical Image Analysis, IEEE Transaction on Medical Imaging, IEEE Transaction on Ultrasonics, Ferroelectrics, and Frequency Control, IEEE Transaction on Biomedical Engineering, IEEE Transaction on Information Technology in Biomedicine,

Computers in Biology and Medicine, Computerized Medical Imaging and Graphics, Digital Signal Processing, Cardiovascular Magnetic Resonance, Cardiovascular Imaging. Conference: Design of Medical Devices Conference, Europe 2013, Medical Image Computing and Computer Assisted Intervention (MICCAI) 2012-13, MICCAI-CVII 2011, International Symposium on Mixed and Augmented Reality (ISMAR) 2012.

Invited Talks:

- PicoSEC-MCNet Training Workshop, "The necessity of personalized monitoring for patients with cardiovascular disease," Munich, March 19th 2015.
- University of Magdeburg (Germany), "Computer-assisted decision support for coronary atherosclerosis diagnosis and treatment," February 5th, 2015.
- University of Tehran, Electrical Engineering and Computer Science Department, "Computer-assisted decision support for coronary atherosclerosis diagnosis and treatment," January 25th, 2015.
- MICCAI-CVII/STENT workshop, "The missing link in healthcare system; Personalized monitoring," MIT, Boston MA, 2014.
- Computer Assisted Radiology and Surgery (CARS), "Real-time demonstration of Workflow in the OR," Heidelberg, Germany, 2013.
- University of Barcelona, Computer Vision Center, "patient-Specific Translational research on Atherosclerosis and Diagnosis (STAnD)@CAMP@TUM". February 22nd, 2013.
- PicoSEC-EndoTOFPET-US workshop on intraoperative imaging and navigation solutions, January 16th, 2013.
- Technical University of Munich, Department of Mathematics, "Applications of multiscale analysis in quantification of atherosclerosis disease," November 10th, 2011.
- Sabanci University (Istanbul, Turkey), Department of Engineering and Natural Sciences, "Quantifying Atherosclerosis: IVUS Imaging For Lumen Border Detection and Plaque Characterization," December 22nd, 2010.
- Volcano Corporation (Sacramento, CA), "Detection of Lumen Border in IVUS images via Three-Dimensional Brushlet Analysis," June 28th, 2009.

Student Supervision

- Ph.D.
  - Sailesh Conjeti.
  - Sebastian Pölsterl.
  - Silvan Kraft.
  - Debdoot Sheet.
- M.Sc.
  - Sepideh Mesbah.
  - Shabnam Najafian.
  - Judith Zimmermann.
  - Sailesh Conjeti.
- B.Sc.
  - Ludwig Sigl.

Teaching

- WS 2013/14, Lecturer and organizer, Computer Aided Medical Procedures I.

- SS 2013, Lecturer, Computer Aided Medical Procedures II.
- WS 2012/13, Lecturer, Computer Aided Medical Procedures I.
- WS 2012/13, Lecturer, Interventional Imaging and Image Processing
- SS 2012, Lecturer, Computer Aided Medical Procedures II.

Projects

1. Computational modeling of ultrasonic backscattering statistical physics for in situ tissue characterization, *in collaboration with Samsung*.
2. Intelligent implantable health sensing system (i2Sense).
3. Tissue-specific deformable registration.
4. Patient-Specific Translational research on Atherosclerosis and Diagnosis (STAnD).
5. Active constraints technologies for ill-defined or volatile environments (ACTIVE), *European project FP7-ICT-2009-6-270460*.
6. Estimation of flow parameters from X-ray data, *in collaboration with Siemens (Erlangen, Germany).*
7. Characterization of tissue in optical coherence tomography (OCT) images.
8. IVUS-histology image registration.
9. Decision Support System for Treating Patients with Coronary Artery Disease (Blackthorn), *in collaboration with Siemens Corporate Research (Princeton, NJ).*
10. Simulation of ultrasound signals/images using corresponding histology images.
11. 3D border detection algorithms in ultrasound images for carotid and AAA applications, *in collaboration with Curefab GmbH.*
12. 3D intravascular ultrasound image denoising and segmentation via brushlets and wavelet packets, *in collaboration with Volcano Corp. (Rancho Cordova, CA).*
13. Collection, processing and preparation of OCT and IVUS data for fusion of IVUS and OCT images, *in collaboration with Siemens Corporate Research (Princeton, NJ).*
14. *Ex-Vivo* IVUS data collection from dissected arteries of 40 cadaver hearts, *in collaboration with InfraReDx (Burlington, MA).*
15. *Ex-Vivo* IVUS and OCT data collection from dissected arteries of cadaver hearts, *in collaboration with Lightlab Imaging (Westford, MA).*
16. *Ex-vivo* and *in-vivo IVUS* data collection and development of tissue characterization algorithm, *in collaboration with Boston Scientific (Fremont, CA).*
17. Wideband Synthetic aperture Beamforming and Synthetic Aperture Pulse-Echo Imaging.
18. Comprehension of spoken words by computer through Neural Networks using logarithm of Hamming critical bands (LHCB) Filter Banks.

Bachelor and Master Projects

1. Cardiac magnetic resonance (CMR) image analysis tool for building 3D anatomical models of the heart for patients with implantable cardioverter defibrillators (ICDs).
2. Integration of a WiFi Interface in Win7 C#-GUI development for control and surveillance of a Heart Assist Device in animal experiments.

Publications

- **Journal**

1. Abhijit Guha Roy, Sailesh Conjeti, Stephane G. Carlier, Pranab K. Dutta, Adnan Kastrati, Andrew F. Laine Nassir Navab, **Amin Katouzian**, Debdoot Sheet, "Lumen Segmentation in Intravascular Optical Coherence Tomography using Backscattering Tracked and Initialized Random Walks," Accepted in IEEE J. Biomedical Health Informatics, vol. X, no. X.

2. Sebastian Pölsterl, Maneesh Singh, **Amin Katouzian**, Nassir Navab, Adnan Kastrati, Lance Ladic, Ali Kamen, " Stratification of Coronary Artery Disease Patients for Revascularization Procedure Based on Estimating Adverse Effects," Medical Informatics and Decision Making, vol. 15, no. 9, 2015.
3. Debdoot Sheet, Athanasios Karamalis, Abouzar Eslami, Peter Nöel, Jyotirmoy Chatterjee, Ajoy K. Ray, Andrew F. Laine, Stephane G. Carlier, Nassir Navab, **Amin Katouzian**, "Joint learning of ultrasonic backscattering statistical physics and signal confidence primal for characterizing atherosclerotic plaques using intravascular ultrasound," Medical Image Analysis, no. 18, pp. 103-117, 2014.
4. Debdoot Sheet, Amrita Chaudhary, Sri Phani Krishna Karri, Debnath Das, **Amin Katouzian**, Provas Banerjee, Nassir Navab, Jyotirmoy Chatterjee, Ajoy K. Ray, "In situ histology of mice skin through transfer learning of tissue energy interaction in optical coherence tomography," Journal of Biomedical Optics, vol. 8, no. 9, pp. 090503-1:3, 2013.
5. Debdoot Sheet, Athanasios Karamalis, Abouzar Eslami, Peter Nöel, Renu Virmani, Masataka Nakano, Jyotirmoy Chatterjee, Ajoy K. Ray, Andrew F. Laine, Stephane G. Carlier, Nassir Navab, **Amin Katouzian**, "Hunting for Necrosis in the shadows of intravascular ultrasound," Journal of Computerized Medical Imaging and Graphics, no. 38, pp. 104-112, 2014.
6. HA Kirişli, M Schaap, CT Metz, AS Dharampall, WB Meijboom, SL Papadopoulou, A Dedic, K Nieman, MA de Graaf, MFL Meijs, MJ Cramer, A Broersen, S Cetin, A Eslami, L Florez-Valencia, KL Lor, B Matuszewski, I Melki, B Mohr, I Öksüz, R Shahzad, C Wang, PH Kitslaar, G Unal, **A Katouzian**, M Orkisz, CM Chen, F Precioso, L Najman, S Masood, D Ünay, R Moreno, R Goldenberg, E Vuçini, GP Krestin, WJ Niessen, "Standardized evaluation framework for evaluating coronary artery stenosis detection, stenosis quantification and lumen segmentation algorithms in computed tomography angiography," Medical Image Analysis, vol. 17, no. 8, pp. 859-876, 2013.
7. Abouzar Eslami, Athanasios Karamalis, **Amin Katouzian**, Nassir Navab, "Segmentation by Retrieval With Guided Random Walks: Application To Left Ventricle Segmentation in MRI," Journal of Medical Image Analysis, vol. 17, no. 2, pp. 236-253, 2013.
8. **Amin Katouzian**, Elsa Angelini, Stephane Carlier, Jasjit Suri, Nassir Navab, Andrew Laine, "A State of The Art Review on Segmentation Algorithms in Intravascular Ultrasound (IVUS) Images," IEEE Transaction on Information Technology in Biomedicine, special issue on Atherosclerotic Cardiovascular Health Informatics; Risk Screening and Intervention, vol. 16, no. 5, pp. 823-834, 2012.
9. **Amin Katouzian**, Athanasios Karamalis, Debdoot Sheet, Elisa E. Konofagou, Babak Baseri, Stephane G. Carlier, Abouzar Eslami, Andreas König, Nassir Navab, Andrew F. Laine, "Iterative self-organizing atherosclerotic tissue labeling in intravascular ultrasound images and comparison with virtual histology," IEEE Tran. Biomed. Eng., vol. 59, no. 11, pp. 3039-3049, 2012.
10. **Amin Katouzian**, Shashidhar Sathyanarayana, Babak Baseri, Elisa E. Konofagou, Stéphane G. Carlier, "Challenges in Atherosclerotic Plaque Characterization with Intravascular Ultrasound (IVUS): From Data Collection to Classification," IEEE Transaction on Information Technology in Biomedicine, special issue on Intravascular and Intracardiac Imaging, vol. 12, no. 3, pp. 315-327, 2008.
11. Kaoru Tanaka, Stephane G. Carlier, **Amin Katouzian**, Gary S. Mintz, "Characterization of the Intravascular Ultrasound Radio frequency Signal within Regions of Acoustic Shadowing Behind Calcium," Journal of American College of Cardiology, vol. 49, Issue 9, Supp. B, 2007.
12. Stephane G. Carlier, Kaoru Tanaka, **Amin Katouzian**, "Atherosclerotic Plaque Characterization from Radio Frequency Ultrasound Signal Processing," US Cardiovascular Disease, Issue I, July 2007.

- **Peer-Reviewed Conference Paper**

1. Sebastian Pölsterl, Nassir Navab, **Amin Katouzian**, "Fast training of support vector machines for survival analysis," Accepted in European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD), 2015.
2. Sepideh Mesbah, Sailesh Conjeti, Ajayrama Kumaraswamy, Philipp Rautenberg, Nassir Navab, **Amin Katouzian**, "Hashing forests for morphological search and retrieval in neuroscientific image datasets, " Accepted in Medical Image Computing and Computer Assisted Intervention (MICCAI), 2015.

3. Silvan Kraft, Peter B. Noël, Ernst J. Rummeny, Nassir Navab, **Amin Katouzian**, "Full-Wave Intravascular Ultrasound Simulation from Histology," Medical Image Computing and Computer Assisted Intervention (MICCAI), pp. 627-634, 2014.
4. Olivier Pauly, **Amin Katouzian**, Abouzar Eslami, Pascal Fallavollita, Nassir Navab, "Supervised Classification for Customized Intraoperative Augmented Reality Visualization," Proceeding of International Symposium on Mixed and Augmented Reality (ISMAR), pp. 311-312, 2012.
5. **Amin Katouzian**, Athanasios Karamalis, Jennfifer Lisaukas, Abouzar Eslami, Nassir Navab, "IVUS-Histology Image Registration," The 5th workshop on biomedical image registration (WBIR), pp. 141-149, 2012.
6. Ali Bigdelou, **Amin Katouzian**, Nassir Navab, "Model-based visualization of usability data to support analysis in complex domains," UPA 21st international conference, Henderson, Nevada, USA, 2012.
7. **Amin Katouzian**, Athanasios Karamalis, Andrew Laine, Nassir Navab, "A Systematic Approach Toward Reliable Atherosclerotic Plaque Characterization in IVUS Images," Bildverarbeitung für die Medizin, pp. 21-26, 2012.
8. **Amin Katouzian**, Elsa D. Angelini, Auranuch Lorsakul, Bernhard Sturm, Andrew F. Laine, "Denoising and Lumen Border Detection of Intravascular Ultrasound via Segmentation of Directional Wavelet Representations," Functional Imaging and Modeling of the Heart (FIMH), pp. 104 - 113, Nice, France, 2009.
9. **Amin Katouzian**, Babak Baseri, Elisa E. Konofagou, Andrew F. Laine, "An Alternative Approach to Spectrum-Based Atherosclerortic Plaque Characterization Techniques Using Intravascular Ultrasound (IVUS) Backscattered Signals", MICCAI-CVII 2008.

- **Other Conferences**

1. Sailesh Conjeti, Mehmet Yigitsoy, Tingying Peng, Debdoot Sheet, Jyotirmoy Chatterjee, C. M. Bayer, Nassir Navab, **Amin Katouzian**, "Deformable Registration of immunofluorescence and Histology using iterative Cross-modal Propagation," Accepted in IEEE proceeding of ISBI, New York 2015.
2. Sailesh Conjeti, Debdoot Sheet, Jyotirmoy Chatterjee, Nassir Navab, **Amin Katouzian**, "Mutually Coherent Structural Representation for Image Registration through Joint Manifold Embedding and Alignment," Accepted in IEEE proceeding of ISBI, New York 2015.
3. Mehmet Yigtsoy, **Amin Katouzian**, Nassir Navab, "Structure Propagation for Deformable Image Stitching," Accepted in IEEE proceeding of ISBI, New York 2015.
4. Abhijit Guha Roy, Sailesh Conjeti, Stephane G. Carlier, Andreas Koenig, Adnan Kastrati, Pranab K. Dutta, Andrew Laine, Nassir Navab, Debdoot Sheet, **Amin Katouzian**, "Bag of forests for modeling of tissue energy interaction in optical coherence tomography for atherosclerotic plaque susceptibility assessment," Accepted in IEEE proceeding of ISBI, New York 2015.
5. Judith Zimmermann, S. Rashid, Peng Hu, **Amin Katouzian**, Nassir Navab, Daniel Ennis, "Cardiac MRI derived epicardial fat maps to assist VT ablation procedures for subjects with implantable devices," Accepted in IEEE proceeding of ISBI, New York 2015.
6. Mehmet Yigtsoy, Belangian, Aleksander Djurka, **Amin Katouzian**, Slobodan Ilic, Franju Pernus, Abouzar Eslami, Nassir Navab, "Random Ferns for Multiple Target Tracking in Microscopic Retina Image Sequences," Accepted in IEEE proceeding of ISBI, New York 2015.
7. Debdoot Sheet, S. P. K. Karri, **Amin Katouzian**, Nassir Navab, Ajoy K. Ray and Jyotirmoy Chatterjee, "Deep Learning of Tissue Specific Speckle Representations in Optical Coherence Tomography and Deeper Exploration for In situ Histology," Accepted in IEEE proceeding of ISBI, New York 2015.
8. Debdoot Sheet, Satarupa Banerjee, Sri Phani Krishna Karri, Swarnendu Bag, Anji Anura, Amita Giri, Ranjan Rashmi Paul, Mousumi Pal, Badal C Sarkar, Ranjan Ghosh, **Amin Katouzian**, Nassir Navab, Ajoy K Ray, "Transfer learning of tissue photon interaction in optical coherence tomography towardsin vivo histology of the oral mucosa," IEEE proceeding of ISBI, pp. 1389-1392, 2014.
9. Richard Brosig, Markus Kowarschik, Peter Maday, **Amin Katouzian**, Nassir Navab, "Blood flow quantification using 1D CFD parameter identification," proceedings of SPIE, vol. 9034, pp. 90342R-90342R-6, 2014.
10. Silvan Kraft, Athanasios Karamalis, Debdoot Sheet, Peter Noel, E. Drecoll, Nassir Navab, **Amin Katouzian**, "Introducing Nuclei Scatter Patterns into Histology-Based Intravascular Ultrasound Simulation Framework," Proceedings of SPIE, vol. 8675, pp. 86750Y-1:6, 2013.

11. Debdoot Sheet, Athanasios Karamalis, Silvan Kraft, Peter B. Noël, Tibor Vag, Anup Sadhu, **Amin Katouzian**, Nassir Navab, Jyotirmoy Chatterjee, Ajoy K. Ray, "Random forest learning of ultrasonic statistical physics and object spaces for lesion detection in 2D sonomammography," Accepted in SPIE 2013.
12. Abouzar Eslami, Amin Aboee, Zardosht Hodaei, Mandana J. Moghadam, Stephane G. Carlier, **Amin Katouzian**, Nassir Navab, "Quantification of Coronary Arterial Stenosis by Inflating Tubes in CT Angiographic images," 3D Cardiovascular Imaging: a MICCAI segmentation challenge, 2012.
13. Athanasios Karamalis, Stephane Carlier, **Amin Katouzian**, Nassir Navab, "Confidence estimation in IVUS radio-frequency data with random walks," IEEE proceedings of ISBI, pp. 1068-1071, 2012.
14. **Amin Katouzian**, Elsa D. Angelini, Bernhard Sturm, Andrew F. Laine, "Brushlet Segmentation for Automatic Detection of Lumen Borders in IVUS Images; A Comparison Study," IEEE proceedings of ISBI, pp. 242-245, 2012.
15. **Amin Katouzian**, Elsa D. Angelini, Bernhard Sturm, Andrew F. Laine, "Automatic Detection of Luminal Borders in IVUS Images by Magnitude-Phase Histograms of Complex Brushlet Coefficients", IEEE proceeding of EMBC, Buenos Aires, Argentina, 2010.
16. **Amin Katouzian**, M. Alper Selver, Elsa D. Angelini, Bernhard Sturm, Andrew F. Laine, "Classification of Blood Regions in IVUS Images Using Three Dimensional Brushlet Expansions," IEEE proceeding of EMBC, Minnesota, 2009.
17. **Amin Katouzian**, Babak Baseri, Elisa E. Konofagou, Andrew F. Laine, "Texture-Driven Coronary Artery Plaque Characterization by Wavelet Packet Signatures," IEEE proceedings of ISBI, Paris, May 2008.
18. **Amin Katouzian**, Babak Baseri, Elisa E. Konofagou, Andrew F. Laine, "Automatic Detection of Blood versus non-Blood Regions on Intravascular Ultrasound (IVUS) Images Using Wavelet Packet Signatures," proceedings of SPIE, San Diego, Feb. 2008.
19. **Amin Katouzian**, Shashidhar Sathyanarayana, Wenguang Li, Tom Thomas, Stéphane G. Carlier, "Challenges in Tissue Characterization from Backscattered Intravascular Ultrasound Signals," proceedings of SPIE, vol. 6513, pp. 6513O1-8, 2007.
20. **Amin Katouzian**, A. Prakash E. Konofagou, "A New Automated Technique for Left- and Right-Ventricular segmentation in Magnetic Resonance Imaging," IEEE proceeding of EMBC, New York, 2006.

- **Book Chapter**

1. Arash Taki, Alireza Roodaki, Sara Avansari, Ali Bigdelou, **Amin Katouzian**, Nassir Navab, "New Approaches for plaque component analysis in intravascular ultrasound (IVUS) images," Springer, Under publication.
2. **Amin Katouzian**, Elsa Angelini, Bernhard Sturm, Elisa Konofagou, Stephane Carlier, Andrew Laine, "Applications of Multiscale Overcomplete Wavelet-Based Representations in Intravascular Ultrasound (IVUS) Images," Ultrasound Imaging; Advances and Applications, Springer, 2011.
3. **Amin Katouzian**, Andrew F. Laine, "Methods in Atherosclerotic Plaque Characterization Using Intravascular Ultrasound (IVUS) Images and Backscattered Signals," Atherosclerosis Disease Management, Springer, pp. 121-152, 2010.

- **Abstract**

1. Michael Friebe, Philipp Matthies, **Amin Katouzian**, Sung Oh Cho, "Miniaturized cold emission low energy X-ray tubes for MRI guided intraoperative radiation therapy," in proceeding of the 1st conference on Image-Guided Interventions (IGIC), Magdeburg, Germany, 2014.
2. Michael Friebe, **Amin Katouzian**, Garielle Krombach, Heinz-Werner Henke, "MRI biopsy with semi–automated biopsy needle in Slicer 3D environment," in proceeding of the 1st conference on Image-Guided Interventions (IGIC), Magdeburg, Germany, 2014.
3. Christoph Hennersperger, Marco Riva, Benjamin Gutierrez-Becker, Fausto Milletari, Seyed-Ahmad Ahmadi, **Amin Katouzian**, Lorenzo Bello, Nassir Navab, "A robotic-ultrasound system for intraoperative brainshift detection," B.E.S.T. Innovation Course IRCAD Strasbourg, 2012.
4. Debdoot Sheet, Athanasios Karamalis, Nassir Navab, Andrew F. Laine, Jyotirmoy Chatterjee, Ajay K. Ray, Stephane G. Carlier, **Amin Katouzian**, "Machine learning of ultrasonic statistical physics

primal for tissue characterization in intravascular ultrasound," Late breaking research posters paper, 34th Annual International IEEE EMBS Conference, 2012.

5. **Amin Katouzian**, Athanasios Karamalis, Andreas Koenig, Stephane Carlier, Nassir Navab, "Ambiguity in detection of necrosis in IVUS plaque characterization algorithms," selected as outstanding quality, European Society of Cardiology, 2012.
6. Stephane Carlier, Athanasios Karamalis, **Amin Katouzian**, Nassir Navab, "Confidence estimation with random walks of IVUS based radio-frequency plaque characterization," European Society of Cardiology, 2012.
7. **Amin Katouzian**, Stephane Carlier, "Development and performance of a new unsupervised classifier for IVUS-based tissue characterization," The 31st annual scientific meeting of the Belgian Society of Cardiology, 2012.
8. **Amin Katouzian**, Andrew F. Laine, "Multiscale Overcomplete Wavelet-Based Representations for Classification of Atherosclerotic Plaque Using Backscattered Radiofrequency Intravascular Ultrasound Signals ", (Invited) 34th International Symposium on Ultrasonic Imaging and Tissue Characterization (UITC), 2009.

Patents

1. Ali Kamen, Lance Ladic, Sebastian Pölsterl, Adnan Kastrati, **Amin Katouzian**, Nassir Navab, "A novel cost-effective method for stratification of CAD patients for revascularization procedure based on minimizing the adverse effect," 2013.
2. Debdoot Sheet, Amrita Chaudhary, Jyotirmoy Chatterjee, Ajoy Kumar Ray, **Amin Katouzian**, "Methods and System for Characterizing Tissues in Optical Coherence Tomography," 2013.
3. **Amin Katouzian**, Nassir Navab, "Intelligent Implanted Health Sensing Device and Assembly", WO2014013062.
4. **Amin Katouzian**, Andrew F. Laine, Debdoot Sheet, Athanasios Karamalis, Abouzar Eslami, Stephane G. Carlier, Nassir Navab, "System and Method for Characterizing Tissues in Intravascular Ultrasound using Statistical Physics", 61798983, 3/15/2013.
5. **Amin Katouzian**, Babak Baseri, Elisa E. Konofagou, Andrew F. Laine, "Systems and Methods for Intravascular Tissue Characterization and Border Detection," WO2009023626.