

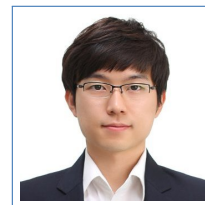
Younsus Kim

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Education

- 2014–current **Johns Hopkins University, Baltimore, MD, USA**, *PhD Program, Computer Science*.
Research interests : Ultrasound thermal imaging, medical devices development, and medical tool tracking
- 2008–2009 **Johns Hopkins University, Baltimore, MD, USA**, *Masters Degree, Electrical and Computer Engineering*.
Research projects : Time-reversal ultrasound imaging system, biomorphic CMOS imagers and Bioamplifiers
- 2004–2008 **Tsinghua University, Beijing, China**, *Bachelor's Degree, Microelectronics and Nanoelectronics Engineering*.
Thesis : High-resolution Digitally Controlled Oscillator for Next Generation Wireline Applications

Work Experience

- Dec 2013 – Feb 2014 **Korea Electronics Technology Institute, IoT Convergence Research Center**, Gyeonggi, Korea, Research Engineer.
- Published a domestic conference paper on the topic of High-speed Computational Fluid Dynamics Simulation of Coronary Artery using GPUs, implemented using CUDA.
- Nov 2009 – Mar 2013 **LG Electronics, Inc, R&D Division/Advanced Technology Team**, Seoul, Korea, Research Engineer.
- Developed 6 and 9-axis Motion Sensor Remote Control as a hardware and firmware engineer, played a pivotal role including chip selection, main board design and firmware development.
- Researched multi-view 3D Auto-stereoscopy TV, developed head tracking system for 3D TV without glasses as a software engineer.
- Researched Holographic TV, conducted training and seminars for division's executives on the topic of principles of Holographic TV technology.
- Developed TV mainboard for Chinese market as a hardware engineer, and also involved in mass production technical trouble shooting.
- Served military duty as a government designated Technical Research Specialist due to strong academic records and previous research achievements.
- Jul 2007 – Aug 2007 **Samsung Electronics, Inc, Telecommunication Research and Development Center**, Beijing, China, Research Intern.
Developed new applications for mobile phone as part of the Research and Strategy Group.

Skills & Abilities

- Programming Languages Matlab, Python, C, C++, Java, SQL, etc.
- Tools Deep learning tools (Pytorch, Keras), Zuken, MCUs, FPGA, TSpice tools, Tex, etc.

Languages

- Korean Native Speaker
- English Full professional proficiency
- Chinese Full professional proficiency

Projects & Publications

2014 – **Ultrasound thermometry using ultrasound elements.**

- current - **Y. Kim**, C. Audigier, J. Ziegler, M. Friebe, and E. Bector. Ultrasound thermal monitoring with an external ultrasound source for customized bipolar RF ablation shapes. *International Journal of Computer Assisted Radiology and Surgery*, Apr 2018.
- **Y. Kim**, C. Audigier, N. Ellens, and E. Bector. A novel 3d ultrasound thermometry method for hifu ablation using an ultrasound element. In 2017 IEEE International Ultrasonics Symposium (IUS), pages 1-4, 2017.
- C. Audigier, **Y. Kim**, and E. Bector. A novel ultrasound imaging method for 2d temperature monitoring of thermal ablation. In *Imaging for Patient-Customized Simulations and Systems for Point-of-Care Ultrasound*, pages 154-162, 2017.
- C. Audigier, **Y. Kim**, A. Dillow, and E. Bector. Computational modeling of radiofrequency ablation: evaluation on ex vivo data using ultrasound monitoring. In *Proc.SPIE*, pages 10135 - 10, 2017.
- **Y. Kim**, X. Guo, A. Cheng, and E. Bector. Speed of sound estimation with active pzt element for thermal monitoring during ablation therapy: feasibility study. In *Proc.SPIE*, pages 9790 - 8, 2016.
- Three more conference papers on ultrasound thermometry are accepted and pending for publication due to a patent application. (Two first author papers and one second author paper)

2014 – **Single element ultrasound imaging.**

- current - H. Zhang, **Y. Kim**, M. Lin, M. Paredes, K. Kannan, A. Moghekar, N. Durr, and E. Bector. Toward dynamic lumbar puncture guidance using needle-based single-element ultrasound imaging. *Journal of Medical Imaging*, pages 5 - 10, 2018.
- H. Zhang, M. Lin, **Y. Kim**, M. Paredes, K. Kannan, N. Patel, A. Moghekar, N. Durr, and E. Bector. Toward dynamic lumbar punctures guidance based on single element synthetic tracked aperture ultrasound imaging. In *Proc.SPIE*, pages 10135 - 11, 2017.
- H. Zhang, H. Huang, C. Lei, **Y. Kim**, and E. Bector. Software-based approach toward vendor independent real-time photoacoustic imaging using ultrasound beamformed data. In *Proc.SPIE*, pages 10064 - 6, 2017.

2014 – 2018 **Photoacoustic catheter tracking.**

- A. Cheng, **Y. Kim**, Y. Itsarachaiyot, H. Zhang, R. Clifford, R. Taylor, and E. Bector. Photoacoustic-based catheter tracking: simulation, phantom, and in vivo studies. *Journal of Medical Imaging*, 5 - 10, 2018.
- A. Cheng, Y. Itsarachaiyot, **Y. Kim**, H. Zhang, R. Taylor, and E. Bector. Catheter tracking in an interventional photoacoustic surgical system. In *Proc.SPIE*, pages 10135 - 8, 2017.
- A. Cheng, **Y. Kim**, H.K. Zhang, R. Taylor, and E. Bector. Catheter tracking in an interventional photoacoustic surgical system. In 2016 Conference on Lasers and Electro-Optics (CLEO), pages 1-2, 2016.

2014 – 2017 **Evaluation platform for ultrasound-guided navigation system & Robot-based calibration and tool tracking.**

- **Y. Kim**, S. Kim, and E. Bector. Consistent evaluation of an ultrasound-guided surgical navigation system by utilizing an active validation platform. In *Proc.SPIE*, pages 10135 - 6, 2017.
- F. Aalamifar, A. Cheng, **Y. Kim**, X. Hu, H. Zhang, X. Guo, and E. Bector. Robot-assisted automatic ultrasound calibration. *International Journal of Computer Assisted Radiology and Surgery*, 11(10):1821-1829, Oct 2016.
- Q. Ma, J. Davis, A. Cheng, **Y. Kim**, G. Chirikjian, and E. Bector. A new robotic ultrasound system for tracking a catheter with an active piezoelectric element. In 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 2321- 2328, 2016.
- **Y. Kim**, Guo X., and Bector E. New platform for evaluating ultrasound-guided interventional technologies. In *Proc.SPIE*, pages 9790 - 9, 2016.

Extracurricular Activities

Student associations Served as a board member at Johns Hopkins University and Tsinghua University

Ski Certified Official Ski Instructor level 2 at Korean Ski Instructors Association