Zhijin Li

Advanced Applications Engineer - GE Healthcare France

"Applied Mathematics, Computer Vision, Medical Imaging & Machine Learning"

Education

2014–2017 **Ph.D**, École Normale Supérieure de Paris-Saclay, Cachan, France.
Task-based Optimization of 3D X-ray Breast Imaging Using Mathematical Observers
Supervisors: Prof. Agnès Desolneux & Dr. Ann-Katherine Carton
Applied Mathematics, X-ray Breast Imaging, Virtual Clinical Trials

2011–2013 **M.Sc & Engineering**, Ecole Supérieure d'Electricité, Gif-sur-Yvette, France.
Applied Mathematics in Signal and Information Processing

2007–2011 **Bachelor's Degree**, Beihang University, Beijing, China.
Information and Computer Science

Professional Experience

2017–Present **Advanced Applications Engineer**, GE Healthcare, *Women's Health Applied Research*, Paris, France.
- Lead research in deep neural networks for detection and classification of radiological findings in X-ray breast images
- Drive application of deep learning technology (supervised & unsupervised learning) and software frameworks (Tensorflow, Keras) in 3D breast imaging
- Develop & maintain C++ softwares (virtual X-ray imaging simulator, image quality assessment) for Virtual Clinical Trials implementation

2014–2017 **Research Engineer**, GE Healthcare, *Breast Care Applied Research*, Paris, France.
- Lead research in 3D stochastic geometric breast texture model for X-ray breast image simulation
- Lead implementation of clinical task-based image quality assessment models for automatic image scoring of X-ray breast images
- Implement & deploy large scale (100 thousand simulations) Virtual Clinical Trial for the comparison of microcalcification detectability between 2D & 3D X-ray breast imaging

2013–2014 **R&D Intern (6 months)**, GE Healthcare, Paris, France.
Fluoroscopic sequence stabilization through movement estimation during transaortic valve implementation

2012-2013 **R&D Project Member (4 months)**, Electricité de France, Chatou, France.
Dimensionality reduction, visualization and outlier annotation for nuclear center temperature curves

2012-2012 **R&D Intern (3 months)**, Bouygues Energy Service, St-Quentin-en-Yvelines, France.
Automatic rust detection in drone-images on metallic structures

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Skills

Applied Maths	Probability & Statistics, Machine Learning, Computer Vision, Stochastic Geometry, Stochastic Simulation, Medical Image Analysis
Programming	C++ (5-years library development), Python, Tensorflow & Keras, Matlab, Shell (Bash), R, Latex
Clinical	2D Mammography, 3D Digital Breast Tomosynthesis, Breast Cancer Screening & Diagnosis.
Languages	Chinese (Mothertongue), French (Fluent), English (Fluent)

Publications

Journal

In preparation for submission, "Statistical parameter inference of a 3D stochastic breast texture model using clinical data".

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Doctoral Thesis

2017 **École Normale Supérieure de Paris-Saclay**.
Task-based Optimization of 3D X-ray Breast Imaging Using Mathematical Observers

.

International Conference

2018 **IEEE International Symposium on Biomedical Imaging**, *Washington DC, USA*, Poster.
R, Sanchez de la Rosa, A. K. Carton, P. M. de Carvalho, **Z. Li**, S. Muller, I. Bloch, "Preliminary study of CEDBT and CESM performances using simulated analytical contrast uptakes"

.

2018 **SPIE Medical Imaging**, *Houston, USA*, Oral.
Z. Li, A. Desolneux, S. Muller, P. M. de Carvalho, A. K. Carton, "Comparison of microcalcification detectability in FFDM and DBT using a virtual clinical trial"

.

2018 **SPIE Medical Imaging**, *Houston, USA*, Oral.
J. Mainprize, A. K. Carton, R. Klausz, **Z. Li**, D. M. Hunter, G. E. Mawdsley, S. Muller, M. J. Yaffe, "Development of a physical 3D anthropomorphic breast texture model using selective laser sintering rapid prototype printing"

.

2018 **SPIE Medical Imaging**, *Houston, USA*, Poster.
A. Mira, Y. Payan, A. K. Carton, P. M. de Carvalho, **Z. Li**, V. Devauges, S. Muller, "Simulation of breast compression using a new biomechanical model"

.

2016 **International Workshop in Breast Imaging**, *Malmö, Sweden*, Oral.
Z. Li, A. Desolneux, S. Muller et A. K. Carton, "A novel 3D stochastic solid breast texture model for X-ray breast imaging"

.

2015 **SPIE Medical Imaging**, *Orlando, USA*, Poster.
Z. Li, A. K. Carton, S. L. Muller, R. Iordache et A. Desolneux, "The effect of NPS calculation method on power-law coefficient estimation accuracy in breast texture modeling"

.

2015 **SPIE Medical Imaging**, *Orlando, USA*, Oral.
A. K. Carton, P. M. de Carvalho, **Z. Li**, C. Dromain et S. Muller, "Assessment of mass detection performance in contrast enhanced digital mammography"

.

2015 **Congrès GRETSI**, *Lyon, France*, Poster.
A. Desolneux, **Z. Li**, A. K. Carton et S. Muller, "Coupes et projections de modèles 3D de textures gaussiennes ou granulaires"

.

Award

2011–2013 France Excellence Scholarship

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