

# Xin Fu

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## EDUCATION

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- **School of Electronic Information, Wuhan University, China** *Sept. 2015 – July 2019 (expected)*  
B.E. in Electronic Information Engineering; GPA: **3.77/4.0** | **89.6/100**  
Relevant Coursework:
  - Advanced Mathematics B2 (96/100)      Linear Algebra B (94)      Engineering Stochastic Mathematics (91)
  - Data Structure and Algorithms (95)      Digital Image Processing (94)      Object-Oriented Programming (93)
- **School of Engineering, University of British Columbia, Canada** *July 2018 – Oct. 2018*  
Visiting undergraduate research intern, supervised by Prof. Zheng Liu

## PUBLICATION

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- **Paper**
  1. **Xin Fu**, Zheng Liu, *et al.* Towards End-to-end Pulsed Eddy Current Classification and Regression with CNN, accepted by *2019 IEEE International Instrumentation and Measurement Technology Conference*.
  2. **Xin Fu**, Jia Yan, Cien Fan. Image Aesthetics Assessment using Composite Features from Off-the-shelf Deep Models, accepted by *2018 IEEE International Conference on Image Processing (ICIP 2018)*.
  3. Jia Yan, Jie Li, **Xin Fu**. No Reference Quality Metric of Contrast Distorted Images using Equalization, submitted to *Journal of Visual Communication and Image Representation, 2018*.
- **Patents** (7 in total)
  1. **Xin Fu**, Jia Yan, *et al.* Most Beautiful Route Navigation System via Street View Image Aesthetics Score. Patent No. 201710984682.8, Sept. 2017
  2. Yaoxing Wang, **Xin Fu**, Shujing Zhao, *et al.* Digital Signal Generator Based on FPGA. Patent No. 201621319092.0, Dec. 2016

## ACTIVITIES AND PROJECTS

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- Artistic Image Generation from Sketch *May. 2018*
  - Final course project for *Digital Image Processing*, supervised by Prof. Jia Yan
  - Proposed a novel way to generate artistic picture from casual sketch using deep learning.
  - Detail: Conditional adversarial network and style feature transform. GitHub: sketch-to-art
- Deep Learning Specialization on Coursera *Feb. 2018*
  - Certified that successfully completed 5 courses and assignments concerning cutting-edge AI technology
- Survey and implement new deep learning algorithms *Dec. 2017*  
*MSRA Student Project, supervised by researcher in MSRA*
  - Implemented algorithms and contributed to Microsoft official AI samples open source project.
  - Detail: Implement Tensorflow(Keras) Capsule Network and various GANs on Visual Studio
- HACKxFDU (the biggest Hackathon in China), Shanghai *Nov. 2017*
  - Team leader, developed a smart car prototype on NVIDIA Embedded System with deep learning.
  - Detail: SSD object detection algorithm on Caffe, OpenCV tracking, Nvidia Jetson with CUDA, ROS
- Google Android National College Student Mobile Internet Innovation Challenge *Sept. 2017*
  - Team leader, developed a photo-analyzing app based on image aesthetic assessment with deep learning.
  - Detail: Caffe model deployment, scene Recognition model, Android mobile development
- Microsoft Student Summer Camp *Aug. 2017*
  - Proposed idea "Suspect Sketch Generation with GAN" was awarded the best project by the experts in MSRA.

## AWARDS AND HONORS

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- Microsoft Beauty of Programming, **2<sup>nd</sup> Prize (2/2500, top 0.1%)** *Aug. 2017*  
- Built a chatbot based on **natural language processing** and machine learning algorithms.  
Detail: KBQA-based model, image classification, Caffe image aesthetics analysis model, Azure deployment
- National Undergraduate Electronic Design Contest, Hubei Prov., **1<sup>st</sup> Prize (top 1%)** *Sept. 2016, 2017*  
- Developed algorithms of autonomous quadcopter control system with machine vision.  
Detail: Cascade PID controller algorithm, real-time object tracking based on **image processing**, Kalman filter  
(2016): Electronic weighing system based on sensors and FPGA with signal processing algorithm
- National English Competition for College Students, **3<sup>rd</sup> Prize (top 5%)** *May. 2017*
- Yu Gang Scholarship (**top 1/380**) *Sept. 2016*
- First-Class Scholarship (**top 4/380**) *Sept. 2017*
- Triple-A Outstanding Student of Wuhan University (**top 1%**) *Oct. 2017*
- Mitacs Globalink Research Internship Award *Jan. 2018*

## RESEARCH EXPERIENCE

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- **Research Assistant** *July 2018 – Oct. 2018*  
**ISDPR Lab, University of British Columbia, Canada**  
Advisor: Prof. Zheng Liu  
– Research: **Using Deep Learning for Industrial Inspection Data Analysis**  
Selected and supported by **Chinese Scholarship Council** and **Mitacs Globalink Research Program**.  
Proposed generic multi-task CNN model to process and classify inspection data from industrial scenarios.  
Analyzed and compared my model to other machine learning methods. Write a paper and submit it to an international conference.
- **Research Assistant** *Mar. 2016 – Present*  
**Digital Signal Processing Lab, Wuhan University, China**  
Advisor: Prof. Jia Yan and Prof. Cien Fan  
– Research: **Image Quality/Aesthetics Assessment**  
Exploited **convolutional neural network** and **machine learning** methods on image assessment tasks.  
Proposed efficient method of utilizing composite features which **achieved state-of-the-art** performance.  
Applied image equalization and structural-similarity index (SSIM) and support vector machine for No-reference image quality assessment (NR-IQA) problem. Maintain the source code on GitHub: CEIQ  
– Project: **Ultrasonic-based Virtual Touch Device**  
Selected by **National Undergraduate Training Program for Innovation and Entrepreneurship**  
Proposed and built universal input device with sensors and microcontrollers using signal processing.

## LEADERSHIP

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- **President**, Microsoft Student Club, Wuhan University *May. 2017 – May. 2018*  
- Organized campus-wide technical events and Hackathon, supported by Microsoft Research Asia.
- **Training Advisor**, Electronic Creative Club, Wuhan University *Jun. 2017 – May. 2018*  
- Training freshmen to start electronic design with microcontrollers.

## SKILLS

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- **Research Related:**  
**ML:** Tensorflow, Keras, Caffe, PyTorch, OpenCV, Scikit-Learn, *etc.*  
**Mathematics:** Calculus, Linear Algebra, Probability and Statistics, *etc.*
- **Programming Related:**  
**Languages:** Python, C/C++, MATLAB, LaTeX, C#, Verilog HDL, Assembly, *etc.*  
**Development:** Git, Linux, Shell, Cross-platform App, Web.  
**GitHub:** mtobeiyf (total star: **500+**) Open source project maintainer & contributor
- **TOEFL iBT:** 106 (Reading - 28, Listening - 27, Speaking - 21, Writing - 30)  
**GRE:** Verbal - 153, Quantitative - 170, Analytical Writing - 3.5