

Jingxi Xu

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Education

Columbia University

MSc Computer Science (Machine Learning Track)
Overall GPA: 4.04/4.0

New York, NY
Expected Dec. 2018

The University of Edinburgh

BEng (Hons) Computer Science and Electronics
First Class (with class medal)

Edinburgh, UK
2015–2017

Dalian University of Technology

BEng Network Engineering
Overall GPA: 90/100

Dalian, China
2013–2015

Research Experience

CSAIL, Massachusetts Institute of Technology

Advisors: Prof. Leslie Pack Kaelbling, Prof. Tomas Lozano-Perez

Cambridge, MA

Summer visiting student

May 2018 - Sep. 2018

- Built a robot task and motion planning system on a PR2 robot, integrating actively learned (using Gaussian processes) action primitives, planning and perception. Developed algorithms to learn sampling directions of continuous constraint satisfaction problems for task and motion planning.

DVMM, Columbia University

Advisor: Prof. Shih-Fu Chang

New York, NY

Jan. 2018 - May 2018

- Developed deep learning models (LSTM, 3D-convolution, etc.) for automatic personality analysis from interview videos. This project aimed at helping companies to automatically select proper candidates.

Machine Learning, Columbia University

Advisor: Prof. Nakul Verma

New York, NY

Sep. 2017 - May 2018

- Developed active learning and online learning algorithms for metric learning to improve the performance of clustering, with specific focus on potential applications in bioinformatics and neuroscience.

Robotics Group, Columbia University

Advisor: Prof. Peter Allen

New York, NY

Sep. 2017–Jan. 2018

- Integrated eye-tracking features with electroencephalography (EEG)-based brain-computer-interface (BCI) systems for assistive robots.

Compiler & Architecture Design Group, The University of Edinburgh

Undergraduate Thesis, Advisors: Prof. Nigel Topham, Prof. Boris Grot

Edinburgh, UK

Sep. 2016–May 2017

- Developed hybrid hardware/software CPU simulator using FPGA and embedded Linux with a Zybo board.

Professional Experience

ARM Ltd.

Intern, Research & Development Department

Cambridge, UK

May 2017–Aug. 2017

- Built web applications for CPU pipeline visualization.
- Worked with various internal and external stakeholders and partners to ensure that the proper legal and quality standards of the materials were adhered to.

Teaching Experience

COMS 4733 Computational Aspects of Robotics: Teaching Assistant

Fall 2018, Columbia University

COMS 4771 Machine learning: Teaching Assistant

Spring 2018, Columbia University

Honours and Award

CA Fellowship <i>To students with top GPA and have done exceptional TA work</i>	Columbia University 2018
Class Medal <i>Ranked 1st among all students in Computer Scienec and Electronics class</i>	The University of Edinburgh 2017
2+2 Program Scholarship <i>To students selected to the highly competitive 2+2 program</i>	The University of Edinburgh 2015-2017
Dalian Mathematics Contest for University Students <i>3rd Prize</i>	Dalian, China 2014

Selected Projects

Humble Active Learning from Peers for Personalization:

- Developed efficient active and multitask learning algorithms for large-scale personalization systems using limited number of queries.

Deep Learning for Music Recommendation:

- Participated in KKBox's Music Recommendation Challenge on Kaggle using collaborative filtering, matrix factorization and a jointly trained wide and deep model (linear regression and deep neural networks).

Autonomous Driving with GoPiGo Mobile Robot:

- Developed a self-driving GoPiGo mobile car using computer vision techniques (OpenCV). The GoPiGo follows the yellow lane on a test track and stops when seeing an orange line.

Robot Learning and Sensorimotor Control:

- Developed and Implemented Inverse Kinematics algorithms using machine learning methods. Applied this IK solver to a 7DOF Baxter Robot to reach particular targets with different redundancy resolutions. Analysed the performance to get the best configuration.

On-demand Public Mini-bus Transport System:

- Developed a command-line application in C, the purpose of which was to execute stochastic simulations of an on-demand public mini-bus transport system for future cities, in order to gain insights into how the efficiency of this operation and the customers' satisfaction could be optimized.

Compiling Techniques:

- Developed a compiler from scratch for mini-C language (parser, ast builder, semantic analyser and code generator) in Java, targeting a RISC instruction set architecture; implemented compiler passes in an existing compiler infrastructure in C++ (LLVM).

Parallel Architectures:

- Developed a cache coherence protocol simulator (implemented three variants of invalidation based MSI protocols – Snooping based protocol, Directory based protocol, etc.) and evaluated its performance on 2 memory access traces.

Technical Skills

Programming Languages: Python, C/C++, Verilog, Java, MATLAB/Octave, HTML/CSS

Others: ROS, L^AT_EX, Shell Script, Assembly, FPGA, Unix/Linux, Compiler, SQL