# Jingxi Xu

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Jingxi Xu • jingxixu

## Education

**Columbia University** — **New York, NY**
*MSc Computer Science (Machine Learning Track)* — *Expected Dec. 2018*
Overall GPA: 4.04/4.0

**The University of Edinburgh** — **Edinburgh, UK**
*BEng (Hons) Computer Science and Electronics* — *2015–2017*
First Class (with class medal)

**Dalian University of Technology** — **Dalian, China**
*BEng Network Engineering* — *2013–2015*
Overall GPA: 90/100

## Research Experience

**CSAIL, Massachusetts Institute of Technology** — **Cambridge, MA**
*Supervisor: Prof. Leslie Pack Kaelbling, Prof. Tomas Lozano-Perez*
Summer visiting student — *May 2018 - Sep. 2018*

- Developed 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** — **New York, NY**
*Supervisor: Prof. Shih-Fu Chang* — *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** — **New York, NY**
*Supervisor: Prof. Nakul Verma* — *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** — **New York, NY**
*Supervisor: Prof. Peter Allen* — *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** — **Edinburgh, UK**
*Undergraduate Thesis, Supervisor: Prof. Nigel Topham, Prof. Boris Grot* — *Sep. 2016–May 2017*

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

## Professional Experience

**ARM Ltd.** — **Cambridge, UK**
*Intern, Research & Development Department* — *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 4771 Machine learning**: Teaching Assistant — *Spring 2018, Columbia University*

**COMS 4733 Computational Aspects of Robotics**: Teaching Assistant — *Fall 2018, Columbia University*

## Honours and Award

**CA Fellowship** — **Columbia University**
*To students with top GPA and have done exceptional TA work* — *2018*

**Class Medal** — **The University of Edinburgh**
*Ranked 1st among all students in Computer Scienec and Electronics class* — *2017*

**2+2 Program Scholarship** — **The University of Edinburgh**
*To students selected to the highly competitive 2+2 program* — *2015-2017*

**Dalian Mathematics Contest for University Students** — **Dalian, China**
*3rd Prize* — *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, LaTeX, Shell Script, Assembly, FPGA, Unix/Linux, Compiler, SQL