Timur Kuzhagaliyev

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github.com/TimboKZ
Python, Typescript, C++

Education

University College London (UCL) — **London, UK**

Master of Engineering, Computer Science — **September 2015 - June 2019**

GPA: 82%, Machine Learning track including machine vision, graphical models, deep & reinforcement learning.

California Institute of Technology (Caltech) — **Pasadena, California, USA**

Exchange Student, Computer Science — **September 2017 - June 2018**

GPA: 3.8, Numerical Algorithms track including applied linear algebra, information theory, game theory.

Work Experience

Amazon — **London, UK**

Software Development Engineer — **September 2019 - Present**

- (Dec 2019 - Present) As a member of the Video Quality Analysis team at Prime Video:
  - Worked on debugging and optimizing machine learning and deep learning algorithms. Designed DevOps and MLOps pipelines. Used **Python**, **OpenCV**, **MXNet**, and various **AWS** services.
  - Decreased analysis algorithm latency from 4x to 2x the video duration on average by replacing expensive OCR service calls with a custom convolutional neural network trained for algorithm's needs.
  - Increased video analysis system throughput from 10s to 100s of parallel analysis jobs by leading the design and implementation of a new serverless backend.
- (Sep 2019 - Dec 2019) As a member of the Living Room Client team at Prime Video:
  - Worked on improving the frontend for the Prime Video TV app. Used **Typescript** and **React** with **Redux**.
  - Introduced pointer control support to Prime Video TV app, which was initially designed to only support D-pad, by revamping how component focus and section transition animations were handled.
  - Improved animation performance in edge cases from 5fps to 30fps by optimizing React updates.

Amazon Lab126 — **Cambridge, UK**

Software Development Intern — **June 2018 - September 2018**

- As a member of the Camera team in the Hardware & Architecture department:
  - Developed a tool for real-time relighting of poorly-lit images based on sparse depth maps using **C++**, **OpenCV** and **Godot**. The tool showed promising results and was picked up for further productization.
  - Considerably sped up team's depth map analysis and 3D simulation efforts by rewriting the in-house 3D engine as a plugin for the Godot game engine with a custom C++ backend.

UCL Surgical Robot Vision group — **London, UK**

Research Intern — **July 2017 - September 2017**

- Developed the first openly documented Microsoft HoloLens system for overlaying holograms over surgical tools, using infrared markers and external IR trackers. Used **C#** for HoloLens and **Python** for backend.
- Published a paper that was accepted for oral presentation at the 2018 SPIE Medical Imaging Conference, and has since been cited 15 times, putting it into top 25% cited papers.

Microsoft, UCL Institute of Child Health — **London, UK**

Intern Team Lead — **June 2017 - August 2017**

- Supervised a team of interns developing a system for Project Fizzyo, used for analysis of cystic fibrosis patient data. Fizzyo has since won several awards and produced over 10 papers (incl. a paper for NeurIPS).
- Personally developed a frontend-agnostic API backend using **Node.js**, **Express.js** and **PostgreSQL**. The backend is used to this day with minimal changes, collecting anonymised data from over 160 child patients.