Ze Ming (Tommy) Xiang

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Professional Experience

- **Google LLC**, *Software Engineering Intern, Google Docs Team* 2018 Summer
  - Implemented MVC structured, accessibility-friendly user interface for layout formatting for Google Docs Android
  - Discovered and proposed solution for flaws in code base vulnerable to potentially significant decrease in typing performance
  - Released completed feature to Google Docs Android, reaching over 100 million users
  - Technologies: JavaScript, Java + Android, Google Closure, Bazel
- **University of Toronto**, *Research Assistant* 2017 Summer
  - Assisted CS Professor with educational game design research, written report on effective game design elements
  - Design and developed educational game Deadlock (**Link**) , constructed survey, gathered data from 20+ testers
  - Implemented in-game graphical block scripting interface and compiler in Unity **C#**, using embedded JS engine
  - Received A+ evaluation from supervisor: Prof. Steve Engels. Featured on UofT News (**Link**)

Education

- University of Toronto, Honors B.Sc, Computer Science Specialist **Class of 2020**

- Dean's List Scholar, President's Entrance Scholarship
- Finished Courses - **GPA: 3.97**:
  - Enriched Introduction to the Theory of Computation
    - Class Average: 70, Final Mark: 98
  - Neural Networks and Machine Learning
  - Natural Language Computing
- Current Courses:
  - Introduction to Visual Computing
  - Machine Learning and Data Mining
  - Computer Graphics
  - Statistics for Computer Scientists

Skills

- **Languages**: Python, C/C++, C#/Java, HTML, CSS, JavaScript, TypeScript, QML, Haxe, SQL, Verilog, Bash, Emacs Lisp.
- **Frameworks + Libraries**: Node.js, Express, Angular 2, Ionic, Bootstrap, Qt Quick, Vue.js, PyTorch, OpenFL, Google Closure.
- **Tools + Software**: Linux, Vim, Emacs, Git, Eclipse, Photoshop, Flash Professional, Unity3D, Microsoft Office.

Personal Projects

- **Time Management App** TypeScript, Angular 2
  - Implemented rigorous time-management hybrid app using HTML, CSS, TypeScript, Angular 2 and Ionic, with automatic scheduling and reward system.
  - Designed greedy algorithm to achieve real-time planning up to 365 days into the future
- **TensorBuilder**(**Link**) QML, JavaScript
  - Implemented a GUI editor for TensorFlow™ in QML and JavaScript using Qt
- **Neuro-evolution Demo**(**Link**) C++
  - Implemented neural network with evolutionary algorithm in C++ using SFML framework during high school
  - Successfully trained simulated ants to seek food by learning
- **Procedural Game**(**Link**) Unity, C#
  - Designed and developed procedural-generated 2D action / adventure game in Unity C# and Haxe
  - Implemented procedural generation as well as culling algorithm to support seamless map with 65536+ tiles
  - 1st place in UofT Game-Making Deathmatch 2017

Course Projects

- **Reddit Political Persuasion Classifier** Python
  - Trained Python program to study political affiliation of comments on Reddit
  - Pre-processed and tokenized the data, manually extracted features, trained multiple classifiers using scikit-learn
- **ShareSchedule**(**Link**) Node.js + Express, PostgreSQL
  - Developed vanilla JS website with Node.js + Express and PostgreSQL, with RESTful API
  - Interface with UofT API, intelligently plan time tables for UofT students, with Facebook login and schedule sharing
  - Written backtracking algorithm in JavaScript to automatically solve for conflict-free schedules
- **Machine Translator** Python
  - Written Python application to translate text across different languages, using smoothed n-gram model
  - Applied IBM-1 alignment model, evaluates with BLEU
- **Emoji Style-Transfer** Python, PyTorch
  - Implemented CycleGAN, a Deep Convolutional Generative Adversarial Network (DCGAN) in PyTorch
  - Generates iOS-style emoji from/to Windows-style emoji

Awards and Contributions

- 1st Place - Bloomberg Codecon UofT 2017
- 2nd Place - Microsoft Code Competition UofT 2017
  - Solved one of the hardest problem
- 2nd Best Accuracy - (National) USC Competition 2017
  - Developed geo-tagging tool for drone mission
- Silver Medalist - (National) Canadian Computing Olympiad(**Link**) 2016
- Co-President of Game Design and Development Club 2017 - 2018
- 1st - UofT Game-Making Deathmatch 2017
  - Best Overall and Best Technical Achievement Award
  - Judges recommended commercial release
- 3rd Place - Big Data Challenge 2016
  - Analyzed and visualized open data using Python
  - Journal Published on STEM Fellowship(**Link**)
- Vision Subdivision Lead of University of Toronto Aerospace Team: Aerial Robotics division 2017 - 2018