BANG CHI DUONG

https://bangchi.tk

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Skills

- **Languages:** Python, R, C++, C#, Java, Javascript, SQL, HTML5, CSS3, Perl
- **Frameworks:** Azure, Azure DevOps, Webpack, Babel, Typescript, React, Bootstrap, NodeJS, Express, ASP.NET Core, ESLint, Flask, REST, GraphQL, Docker, JIRA, Mocha, Jest, PostgreSQL, MongoDB, SQL Server, TensorFlow, D3.js
- **Machine Learning:** Generalised Linear Model, Dimension Reduction Analysis, Deep Learning, Time Series Analysis

Experience

- **Technical Safety BC** — Vancouver, Canada
  Data Scientist (Internship) — *May 2019 – Aug 2019*
  - **API Backend Microservice - Flask/Docker:** Built a REST API backend microservice for the data science team to efficiently share data with other teams/departments, and set up Flask unit tests
  - **Web Scraping - Python:** Built a web scraper to gather public data on building permits from various sources
  - **PDF Information Extraction - Python:** Accelerated team's data processing time by building a tool that extracts information from PDF files into CSV/JSON formats
  - **Financial Forecast - Python:** Built a pipeline to evaluate the forecast accuracy of various time series models (e.g. classical (S)ARIMA(X), LSTM neural networks) to improve operational expenditure planning
- **Ubisoft - La Forge** — Montreal, Canada
  AI Programmer (Internship) — *Sep 2018 – Dec 2018*

  Optimized game developer and player experience by accelerating 3D interactive physics simulations with a 300 - 5000 times increase in speed:
  - **Data Acquisition - Maya nCloth:** Generated/Extracted a pool of interactive cloth and soft body data
  - **Deep Learning - Python:** Extracted a compact subspace representation of (256/128/64) bases from ∼10,000 dimensions using PCA, and trained neural networks entirely in the subspace to predict future motion trajectory
  - **Interactive Runtime Application - C++:** Integrated the learned models into a C++ runtime application

Projects

- **Resource Utilization System - C#/.NET Core/React/SQL-Server:** Built a full-stack web application based on external client specs in an agile environment; I looked after the DevOps processes including Testing/Staging/Production Build and Deployment Pipelines on Azure, and contributed to the back-end development: communication with front-end and SQL-Server database, building REST APIs and integrating Authentication and Authorization (roles and scopes based) with Azure Active Directory through OAuth 2.0 protocol.
- **Full-stack template - Webpack, Babel, Typescript, React/Redux, ExpressJS, MongoDB, ESLint, Jest, REST, GraphQL, Azure, Azure DevOps (Ongoing):** Building a full-stack web application template including development, production, testing, and deployment. Source code can be found at **https://github.com/duongch4/mern/**. Deployed website is **https://mern-00.azurewebsites.net/**
- **2D Game Project - C++/OpenGL:** Built a 2D game called **Capture the Castle** using the ECS pattern; my main contribution focused on the AI and particle system. The game was awarded "Second Best Game" and came first in "Interaction and Control" in the class. An executable directory can be found at **https://bangchi.tk/#projects/**
- **Data Visualization Project - D3.js:** Built a data visualization called **The Disney Story** using the D3.js framework. The project is deployed at **https://duongch4.github.io/cs436-disney/**. The code-base can be found at **https://github.com/duongch4/cs436-disney/**

Publications

- **18th Annual ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2019)** — Los Angeles, USA
  July 2019
  - **Paper:** Daniel Holden, Bang Chi Duong, Sayantan Datta, and Derek Nowrouzezahrai. 2019. **Subspace neural physics: fast data-driven interactive simulation**. In Proceedings of the 18th annual ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA '19), Stephen N. Spencer (Ed.). ACM, New York, NY, USA, Article 6, 12 pages. **DOI: https://doi.org/10.1145/3309486.3340245**

Education

- **University of British Columbia** — Vancouver, Canada
  Bachelor of Computer Science (BCS); cGPA: 85.7/100.0 — *Sep 2017 – Apr 2020*