

BANG CHI DUONG

<https://bangchi.tk>

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SKILLS

- **Languages:** Python, JavaScript/TypeScript, C#, Java, Visual Basics, C++, SQL, HTML5, CSS3, Perl, R, C
- **Web Stack:** Oracle Database, SQL Server, MongoDB, Flask, REST, Azure, Azure DevOps, Webpack, Babel, React, Bootstrap, Node.js, Express, ASP.NET Core, ESLint, GraphQL, Mocha, Jest, PostgreSQL
- **Machine Learning (ML) & Other Stacks:** Git, Docker, Dataiku, UiPath, D3.js, Bokeh, Qlik, Tensorflow, Jira

EXPERIENCE

- **Technical Safety BC** Vancouver, Canada
Data Scientist / Machine Learning Engineer Jul 2020 – Present
 - **Structured Resource Allocation Program:** Building and maintaining multiple full-stack life-cycle ML projects in production, with proper MLOps practice, ranging from process workflow implementation, to data computation optimization, to ML model training, to production deployment, to model monitoring process, and internal back-end REST APIs maintenance
 - **Robotic Process Automation (RPA):** Built and maintained 3 RPA processes with UiPath for internal Client Experience team, saving more than 600 hours in 7 months on manual and repetitive tasks, and halving the response average turnaround time for external clients
 - **REST API Service:** Implemented authorization with OAuth 2.0 protocol for the research analytic API service, including fully automated authentication/authorization integration test suite
 - **Innovation:** Communicating with stakeholders from different departments to explore potential ML and data-driven projects, giving rise to constant learning, research and innovation opportunities; eg. RPA and Natural Language Process (NLP) for Client Experience team, and a Poisson process simulation for Incident Investigation team
- **Technical Safety BC** Vancouver, Canada
Data Science Co-op May 2019 – Aug 2019
 - **API Service:** Built a REST API service, including unit and integration tests, for the data science team to efficiently share data with other teams/departments
 - **Web Scraping:** Built web scrapers to gather public data on building permits from various sources
 - **PDF Information Extraction:** Accelerated team's data processing time by building a tool that extracts information from PDF files into CSV/JSON formats
 - **Financial Forecast:** Built a pipeline to evaluate the forecast accuracy of various time series models, from classical models to neural networks, to improve operational expenditure planning
- **Ubisoft - La Forge** Montreal, Canada
AI Programmer Co-op Sep 2018 – Dec 2018

Optimized game developer and player experience by accelerating 3D interactive physics simulations with a 300 - 5000 times increase in speed

 - **Publication (Jul 2019):** DOI: <https://doi.org/10.1145/3309486.3340245>
 - **Data Acquisition:** Generated/Extracted a pool of interactive cloth and soft body data with Maya (nCloth)
 - **Deep Learning:** 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:** Integrated the trained models into a C++ runtime application

PUBLICATIONS

- **Nature Communications** Feb 2021
 - **Paper:** Sachamitr, P., Ho, J.C., Ciamponi, F.E. et al. **PRMT5 inhibition disrupts splicing and stemness in glioblastoma.** Nat Commun 12, 979 (2021). DOI: <https://doi.org/10.1038/s41467-021-21204-5>
- **18th Annual ACM SIGGRAPH/Eurographics** Los Angeles, USA
 - **Symposium on Computer Animation (SCA 2019)** Jul 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>

PROJECTS

• Resource Utilization System

Jan 2020 – Apr 2020

- Built a full-stack web application based on external client specs in an agile environment, with daily stand-up
- Developed REST APIs with .NET Core MVC framework, and integrated with Microsoft SQL Server database
- Integrated Azure Active Directory authentication and authorization, with OAuth 2.0 protocol
- Integrated OpenAPI (Swagger) into the application for versioning and documentation purposes
- Involved in bugs fixing for front-end development
- Configured and managed a production-grade DevOps process involving continuous integration and continuous deployment (CI/CD) with GitHub and Azure DevOps, including automatic unit and integration testings
- **Source code:** <https://github.com/duongch4/cs319>
- **Technologies:** C#, .NET Core, React, Redux, Microsoft SQL Server, Azure, Azure Active Directory, Azure DevOps, OpenAPI

• 2D 2-Player Game: Capture the Castle

Sep 2019 – Dec 2019

- Built a 2D 2-player game using the ECS pattern that was awarded "Second Best Game" and came first in "Interaction and Control" in the class
- Developed an AI system for the movements of the soldier, bandit, and boss entities
- Built a particle system for the hailing effect interacting with the on-screen characters
- **Executable file:** <https://bangchi.tk/#projects/>
- **Source code:** https://github.com/duongch4/capture_the_castle/
- **Technologies:** C++, OpenGL

• Data Visualization: The Disney Story

Jan 2020 – Apr 2020

- Built a dynamic and interactive data visualization that was placed in the course Top 5 "Hall of Fame"
- Processed the Academy Award data to get the award information for each of the movies and actors of interest
- Built the dotplot view of the Disney movies broken down by year and Disney era including interactive tooltip
- Created the legends for the dotplot and node-link graphs
- Implemented the drag-and-drop functionality of the node-link graph
- **Deployed website:** <https://duongch4.github.io/cs436-disney/>
- **Source code:** <https://github.com/duongch4/cs436-disney/>
- **Technologies:** JavaScript, D3.js, Python

• Movie Review Web App

May 20218 – Aug 2018

- Built a full-stack web application where users can get information on past and newly released movies, in terms of cast, plot, release date, etc., as well as post their and review other comments
- Developed REST APIs with Node.js and Express framework, and integrated with MongoDB database
- Involved in bugs fixing for front-end development
- Configured a simple CI/CD pipeline with GitHub and Heroku
- **Deployed website:** <https://cs490-project-movie.herokuapp.com/>
- **Source code:** <https://github.com/duongch4/cs490>
- **Technologies:** Node.js, Express, MongoDB, React, Redux

EDUCATION

• University of British Columbia

Vancouver, Canada

Bachelor of Computer Science (BCS); cGPA: 85.8/100.0

Sep 2017 – Apr 2020

• University of Guelph

Guelph, Canada

Master of Bioinformatics; cGPA: 91.0/100.0

Sep 2016 – Aug 2017

• University of Toronto

Toronto, Canada

Bachelor of Science (Hons) in Physics, Statistics and Chemistry; cGPA: 3.73/4.00

Sep 2012 – Apr 2016