BANG CHI DUONG

https://bangchi.tk

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Skills

- **Languages:** Python, JavaScript, Java, C#, Visual Basics, C++, SQL, HTML5, CSS3, Perl, R, C
- **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, Dataiku, UiPath
- **Machine Learning:** Generalized Linear Model, Dimension Reduction Analysis, Deep Learning, Time Series Analysis

Experience

- **Technical Safety BC** — Vancouver, Canada
  Data Scientist — *Jul 2020 – Present*
  - **Structured Resource Allocation Program:** Building and maintaining multiple full-stack life-cycle ML projects in production (exercising proper MLOps), 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 2 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
  - **Technologies used:** Python, Flask, Docker, SQL, Bitbucket, Jira, Dataiku, UiPath
- **Technical Safety BC** — Vancouver, Canada
  Data Science Co-op — *May 2019 – Aug 2019*
  - **API Microservice:** Built a REST API microservice, 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 (e.g. classical (S)ARIMA(X), LSTM neural networks) to improve operational expenditure planning
  - **Technologies used:** Python, Flask, Docker, TensorFlow, SQL, Bitbucket, Jira, Dataiku
- **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:
  - **Data Acquisition:** Generated/Extracted a pool of interactive cloth and soft body data
  - **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 learned models into a C++ runtime application
  - **Technologies used:** Maya (nCloth), Python, Tensorflow, C++, GitLab

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 documentation purpose (with versioning)
  - Involved in bugs fixing for front-end development
  - Configured and managed the whole 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 used:** C#, .NET Core, React, Redux, Microsoft SQL Server, Azure, Azure Active Directory, Azure DevOps, OpenAPI
- **2D 2-Player Game** *Sep 2019 – Dec 2019*
  - Built a game called **Capture the Castle** using the ECS pattern, and it was awarded "Second Best Game" and came first in "Interaction and Control" in the class
  - Developed an AI system for the movements of the soldiers, bandits, and boss
  - Built a particle system for the hailing effect on the on-screen characters
  - **Executable file:** https://bangchi.tk/#projects/
  - **Source code:** https://github.com/duongch4/capture_the_castle/
  - **Technologies used:** C++, OpenGL
- **Data Visualization** *Jan 2020 – Apr 2020*
  - Built a dynamic and interactive data visualization called **The Disney Story** using the D3.js framework, and it 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, cleaning and joining multiple datasets
  - 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 used:** JavaScript, D3.js, Python

Publications

- **Nature Communications** *February 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 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: 85.8/100.0 *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*