BANG CHI DUONG

https://bangchi.tk

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GitHub: https://github.com/duongch4/

Skills

- **Languages:** Python, JavaScript, Java, C#, 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*
  - **API Microservice:** Implemented authorization with OAuth 2.0 protocol for the research analytic API microservice, including fully automated authentication/authorization integration test suite
  - **Resource Allocation Program:** Improved models' maintainability by restructuring pipelines and refactoring code-base; Integrated Shapley Additive Explanations (SHAP) to deliver transparency of models' results to clients
  - **Incidents Planning:** Built a Poisson process simulation to estimate the probability of multiple critical incidents occurring within a near time frame
  - **Robotic Process Automation (RPA):** Participated in code-review within a vendor's development team to integrate RPA with UiPath for a business process, gaining experience and insights for potential scaling of the application to other highly structured and manual processes
  - **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*

References

- **Yuyi Zhou - Technical Safety BC:** yuyi.zhou@technicalsafetybc.ca
- **Daniel Holden - Ubisoft:** daniel.holden@ubisoft.com