106 Staglin Court, Markham, L6C 0M2
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reynold.chan@mail.utoronto.ca

Reynold Chan

EDUCATION

University of Toronto September 2016 - Present (2021 - Graduation)
Bachelor of Applied Science and Engineering in Engineering Science (Infrastructure)

- Artificial Intelligence Engineering Minor, Certificate in Engineering Business
- Awarded President Scholarship
- Passionate about emerging technology and solving problems with innovative methods

SKILLS AND QUALIFICATIONS

- Python, Pytorch, C, C#, VBA, MATLAB, SQL, PowerBi, Qt
- Grasshopper (Parametric Programming and Modelling), Revit, ETABS

EXPERIENCE

Buildings Group July 2020 - August 2020
Structural Engineering Intern *Arup Hong Kong*

- Designed and implemented a sorting algorithm with Python for filtering workflows from a database which reduced weekly tedious tasks from 2 hours to 5 minutes
- Presented the results of algorithm visually in PowerBi for improved accesibility
- Solved and responded directly to contractor's site problems independently
- Aided in shop drawing reviews of project: The Londoner Macao

Buildings Group May 2019 - June 2020
Structural Engineering Intern *Arup Toronto*

- Designed a GUI for structural optimization tool with genetic search algorithms with database implementation
- Gave office presentations on digital education and led group sessions on coding
- Assisted the engineer on client calls and responding to client's questions
- Explored various means to increase workflow efficiency through data interoperability between different disciplines
- Implemented and coded various scripts in Python and VBA to increase efficiency of redundant tasks
- Designed a majority of the structural systems for Toronto Pearson International Airport in Pier G from schematic design phase to construction documentation under accelerated timeline and tight budget
- Aided in design of various structures including: Finch West LRT, University of Toronto Mississauga New Science Building, and Toronto Old Firehall Relocation

Study in Retaining Wall Test and Earth Soil Pressure May 2018 - August 2018
Visiting Research Student Under Supervision of Professor Xu Shi Yu *City University of Hong Kong*

- Aided in design and construction of a nouveau retaining wall test through shop drawings to study failure modes
- Identified strains causing soil failure in a retaining wall using Digital Image Correlation
- Conducted a statistical analysis of 100 geotechnical data points in earth soil pressure with MATLAB
- Generated finite element models to study soil specimens using ABAQUS
- Awarded Summer Research International award

Development of Single Mid Infrared Photon Detector May 2017 - August 2017
Student Researcher Under Supervision of Professor Amar Vutha *University of Toronto*

- Designed and built smallest tuned lasers systems in the lab with self-programmed controllers in Python
- Implemented innovative method detection that is 1000 times more efficient than current methods
- Presented results at the Quantum Computing conference at the Fields Institute

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SIDE PROJECTS

Instrument Classification with Machine Learning Completed
Under Supervision of Professor Paul Gauvreau

- Worked with a team to develop an instrument classification tool based on mixed audio inputs using Pytorch
- Achieved accuracy of 70% in instrument identification with a neural network
- Generated a baseline model of random forest trees for comparison
- Generated and processed new data based on existing data sets for the model

Text Adventure Game Completed

- Coded a text adventure game from scratch with keyboard input using the terminal as input in Python

Mahjong App Current

- Developing a Mahjong app to calculate points based an image of the combination given
- Using C# for app development and Pytorch to train the model
- Generating own data set of mahjong tiles for training the model

Engineering Science Thesis: Applying Machine Learning to Bridges Current

- Developing a generative machine learning tool to aid structural engineers in bridge design
- Validating and testing of the generative model against engineering code checks
- Collaborating and reaching out towards industry partners to generate data-set required for training

EXTRACURRICULARS

University of Toronto Seismic Design Team May 2020 - Present
Digital Projects Advisor

- Main lead for redevelopment of an in-house program that automates tedious model generation
- Gathered members' feedback on In-house program and researched various digital solutions
- Organized a sub-team to redevelop the program with a GUI developed with PyQt

University of Toronto Concrete Canoe Team September 2017 - Present
Structural Lead and Digital Innovator

- Redeveloping existing design algorithm to be streamlined with a GUI extension developed in C++ and Qt
- Trained successive structural leads about reinforced concrete design and structural analysis
- Responsible for structural calculations and written sections in annual design report
- Achieved second place for best design paper in the 2017-2018 Canada wide competition
- Managed structural tutorials to teach new members about structural analysis
- Designed, built, and coded humidity and temperature sensors for monitoring of concrete curing through Python
- Developed original method in fibre separation that increased efficiency by 80%