Jonny Li

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Education

University of Toronto   Graduated Jun 2021

Honours Bachelor of Science, Computer Science and Linguistics
Courses: Data Structures, Algorithms, Operating Systems, Machine Learning, AI, Computational Linguistics, NLP
Activities:
- Foreign Exchange (2018-2019): Studied Computer Science and Linguistics at University of Tokyo.
- UofT Neurotech Workshops Lead (2017-2018): Created tutorial workshops for programming basics (i.e. Python, Git, etc).
- UofT Japan Assocation Webmaster (2017-2018): Designed and managed club website with HTML/CSS/JavaScript.

Skills

Programming Languages: Python, JavaScript, Ruby, Java, C#

Technologies/Frameworks: Git, SQL databases, MongoDB, NodeJS, Ruby on Rails, Bootstrap, jQuery, SASS, Heroku

Other: Agile methodologies, Test suite frameworks, CI/CD tools

Employment

SDE Intern - Amazon @ VirtualLocation   Jun 2020 - Sep 2020

- Developed "Search Engine Configuration Dependency Analyzer", a command-line tool to get dependency chains of configuration objects.
- Implemented DFS with memoization on dense dependency graph of 20,000+ metadata objects and millions of dependencies in Python.
- Conducted analysis on search engine configuration metadata to determine relevant dependency relations of objects.
- Devised efficient methods using data structures to store large output in Amazon S3.
- Contributed to ongoing effort to clean up unused configuration metadata with analysis results from tool.

Software Intern - Mitsucari @ Tokyo, Japan   Sep 2018 - Aug 2019

- Participated in agile development team to deliver mitsucari, a web service to analyze compatibility of current/prospect employees within a company using personality tests.
- Implemented model/view/controller components of website with Ruby on Rails, PostgreSQL, jQuery, Bootstrap, SASS.
- Wrote design documents for features such as site-wide messaging system and implemented them.

Projects

Grammatical Error Correction for Japanese   Apr 2021 - Jun 2021

- Implemented grammatical error correction model desribed in the paper "GECToR -- Grammatical Error Correction: Tag, Not Rewrite" (Omelianchuk et al. 2020) for Japanese in Python.
- Implemented a token-level sequence classification neural network for iterative sequence tagging, using pretrained transformer models and Keras/Tensorflow 2.
- Generated synthetic error dataset from Wikipedia dump for pre-training and fine-tuned on NAIST Lang8 Learner Corpora.
- Analyzed optimal model/training hyperparameters and conducted training with Colab TPUs.
- Created interactive web demo to get grammatical error correction on user input, using Python/JavaScript.

Shift-Reduce Dependency Parser for Japanese   Apr 2021

- Implemented a shift-reduce dependency parser using arc-standard transition system in Python.
- Implemented a feed-forward neural network with PyTorch to predict the next parser action given a parser state.
- Trained model on UD Japanese GSD treebank and with pretrained word embedding weights from Wikipedia2vec.
- Implemented a Colab notebook with interactive visual example of dependency parsing using the model.

Language Learning Discord Bot   Dec 2019

- Developed a Discord chat bot for Japanese language learning, written in Python and deployed on Heroku.
- Implemented dictionary/translation commands by interacting with RESTful APIs and scraping online dictionary websites using HTML parsers.
- Implemented server moderation features to keep track of punished/banned users with MongoDB.
- Created a website to display Discord server statistics with PHP/JavaScript.