Ye (Eve) Shen

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Highlights

- Currently working as a software developer(1~1.5 yr). Full stack development for two python applications and one Java android application. Looking for fulltime software developer position.
- CS master's degree in Georgia Institute of Technology.
- Software development projects: 1) Cryptogram Game App in Android Studio and 2) Star Search Simulation App in Javafx. 3) GTBay website with Postgre SQL and Java.
- Data science projects: 1) Home credit default risk project in Kaggle competition by LightGBM and 2) Disease Classification and Localization in Chest X-ray images by DCNN in Keras/python.
- Summary of courses and skills:
    - Courses: Graduate Algorithm, Software Development Process, Database System Concepts & Design, Computer Networking, Reinforcement Learning and Decision, Data Visualization Analytics, Software Architecture and Design, Big Data Health, Machine Learning, Machine Learning for Trading.
    - Skills: Python (3 years), Java (2 years), Android Studio, Javafx, object-oriented design, Javascript, html, d3, css, Tableau, SQL (2 years), Matlab, Hadoop, Spark, Scala, Git.

Education

Georgia Institute of Technology, USA 01/2018 - 5/2020

- M.S. in Computer Science and Engineering in Machine Learning specialization

University of Wisconsin-Madison, USA 09/2011 - 10/2016

- Ph.D. in Materials Engineering,

Selected Computer Science Projects (Demos: https://yesheneve.github.io/)

Software Architecture and Design project: Star Search Simulator App by JavaFx

- Developed an app to let a group of drones to explore a grid of stars and avoid crashing into other artifacts such as suns and UFOs.
- Applied singleton and observer patterns in the object-oriented design with UML diagrams.
- Timeline animations to show grid updates and user manual control of the drone actions were achieved by JavaFx.

Database Design project: GTBay website (similar to Ebay) by Postgre SQL and Java

- Performed design by drawing database relationship diagrams. Created the SQL schemas and SQL queries to insert, update, select, delete, and sort data.
- Built GUI and enabled it to communicate with the database by Postgre SQL and Java Spark framework.

Software Development project: Cryptogram Game App by Java Android Studio

- Developed an app for multiuser to play cryptogram game. Features include managing user accounts and creating/playing cryptograms.

- Conducted software design by UML diagrams such as class diagram and sequence diagram.
- Built GUI and achieved the functionality by Java in Android Studio. Generated testing cases and performed Espresso test.

Home credit default risk project in Kaggle competition

- Achieved 0.799 ROC AUC score for classification with python.
- Improved model performance by adding hundreds of new features during feature engineering; finding two quite different LightGBM parameter sets to improve cross validation result; adding Xgboost and stacking with those two LightGBM results

Chest X-ray image analysis with DCNN: Disease Classification and Localization

- Incorporated the VGG/DenseNet base-model and the additional transitional/pooling/prediction layers to build the DCNN architecture to do multi-label classification and heatmap disease localization within 108,948 ChestXray images by Keras/python on AWS and Azure.
- Achieved AUC up to 0.83. Disease localization gains an accuracy up to 0.6096.

Reinforcement Learning project: Landing Lunar Lander rocket

- Programmed a space vehicle Lunar Lander to learn to land within a safe zone from a starting point without crashing with the dueling double Deep Q Networking algorithm by Tensorflow/Python.
- Optimized hyper parameters and improving the algorithm with Prioritized Experience Replay: the converged rewards are consistent within 100 trials and higher than the targeted goal value.

Professional Experience

Software Engineer, Hindsight Imaging 03/2019 – present

Individual project: Spectral-Imaging Software

- Built GUI by wxPython framework. Controlled equipment multiple components and achieved live data visualization by multi-thread programming in python.
- Built 3D data visualization tool for data analysis. Applied machine learning algorithm to fingerprint the experimental samples.

Individual project: Diamond-Examiner Android App

- Developed an app which can take photos with both external USB webcams and inner cam. Applied algorithm to calculate diamond grade from the images.

Individual project: OCT Spectrometer Software

- Created C++ wrapper in python to call 3rd party equipment's C++ API. Built GUI in python for users to do data acquisition, equipment alignment and data analysis.

Postdoc Fellow, Harvard University 03/2017 – 03/2018

High-throughput simulations and experiments to develop metallic glasses

- Applied the support vector machine (SVM) method with python to pinpoint the optimal metallic glass forming compositions within more than 100 composition candidates.

Selected Publications

● **Y. Shen**, J.H. Perepezko, "The effect of minor addition of insoluble elements on transformation kinetics in amorphous Al alloys", Journal of Alloys and Compounds, 2015