Ruei-Yao Sun

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EDUCATION

University of Massachusetts Amherst — Amherst, MA
Master of Computer Science — Sep 2019 – Present

- Selected Courses: Neural Networks, Advanced Algorithms, Theory and Practice of Software Engineering

National Chiao Tung University — Hsinchu, Taiwan
Master of Information Management and Finance (Overall GPA: 4.2/4.3) — Sep 2016 – Jun 2018

- Relevant Courses: Deep Learning, Machine Learning, Data Mining, Parallel Computing, Big Data Analytics

Bachelor of Information Management and Finance (Overall GPA: 3.6/4.3) — Sep 2012 – Jun 2016

- Relevant Courses: Object-Oriented Programming, Data Structures, Operating System, Database Management

SKILLS

- Python, Java, R, Matlab, C++, Tensorflow, Spark, Hadoop, Git, HTML/CSS, PHP, Latex

WORK EXPERIENCE

Trend Micro Inc — Jul 2017 – Sep 2017
Machine Learning Engineer Intern | *Python, Numpy, Scikit-Learn* — Taipei, Taiwan

- Achieved 95% average accuracy in script type classification with Random Forest by performing feature engineering and applying different word vector representations, such as word2vec, N-gram and TF-IDF.
- Conducted frequency analysis on binary codes to distinguish benign and malicious executable.

Software Engineering Intern | *Java, Git, RESTful API* — Tokyo, Japan

- Built an anti-virus mobile application which can detect the malicious programs with Japanese interns in two weeks.

E.Sun Bank — Jul 2016 – Aug 2016
Data Engineer Intern | *Python, Pandas, Regular Expression, Multiprocessing* — Taipei, Taiwan

- Pre-processed hundred millions of credit card transactions into a unified format using regular expression and Levenshtein distance, and utilized Python multiprocessing to speed up.
- Analyzed and visualized consumer behavior using RFM model, word-cloud and Tableau.

RESEARCH EXPERIENCE

Computational Linguistics and Information Processing Laboratory, Academia Sinica — Oct 2018 – Feb 2019
Research Assistant | *Python, Tensorflow, Hierarchical Attention Networks, Neural Ranking* — Taipei, Taiwan

- Ranked the relative financial risks among companies using textual information in financial reports.
- Improved 12.7% in two ranking correlation metrics than traditional methods by employing Hierarchical Attention Networks and pairwise learning, and discovered risk-related sentences/words through attention mechanism.
- This work is accepted for 2020 AAAI Workshop.

JP Morgan — Feb 2017 – Jun 2017
Oversea Graduate Researcher | *Python, Tensorflow, Multi-Scale Convolutional Neural Networks* — Hsinchu, Taiwan

- Extracted important indicators from financial statements and exploited RandomForest to pick blue-chip stocks.
- Obtained twice the cumulative return of S&P 500 ETF in backtesting using self-designed probability weighting function to allocate the portfolio dynamically with Multi-Scale Convolutional Neural Networks.

Capital Securities Corp — Dec 2016 – Jun 2017
Graduate Researcher | *Python, K-means, D3.js* — Hsinchu, Taiwan

- Clustered millions of investors through K-means, and interpreted their investment behavior using Decision Tree.
- Developed a website offering customized advice and financial instruments recommendations using Javascript and D3.js.

SELECTED PROJECTS

Expert Trading Strategy Imitator | *Python, Tensorflow, Generative Adversarial Imitation Learning* — Sep 2017 – Jun 2018

- Applied Generative Adversarial Imitation Learning (GAIL) to clone expert investors' trading behavior.
- Enhanced the return on investment (ROI) of GAIL by 15% for two testing years with a modified DAGGER algorithm.

PicDia Mobile App | *Java, Python, Tensorflow, PHP, MySQL* — Feb 2016 – May 2016

- Established a mobile app that help children to learn English using object recognition, TextToSpeech and speech recognition.
- Won the first prize in National 4G Cloud Application Competition 2016

Opinion Maximization in Social Networks | *C++, Matlab* — Mar 2015 – Dec 2015

- Increased the original paper's method by 10% better performance on lager datasets through designing a new heuristic algorithm to simulate the process of opinion formation, and won the third place of graduation exhibition.