Yu-Jung Chou

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Experience

- **Amazon** — Seattle, WA, USA
  Software Development Engineer — *4/2019 - Present*

  Builder Tools - Quilt team: the team provides comprehensive OS patching solutions to keep hosts secure and up to date for OS security patches while maintaining applications' health and reducing operational burden.

  - Designed front-end data provisioning architecture for new patching services to make real-time data provisioned with low latency and avoid throttling.
  - Proposed the solution for the new patching service to support target hosts in the isolated EC2 substrate network.
  - Integrated new patching service with the old patching service to maintain backward compatibility.
  - Implemented the integration tests for our new patching service. Applied Cucumber (Behaviour-Driven Development) to write human-readable test scenarios to improve test readiness and set up the integration test template.

  Prime Air - Panda team: the team builds up and operates the underlying infrastructure to store and analyze Prime Air's data. Panda team's data platform takes raw data, processes it, and puts it into the database.

  - Designed bulk operation APIs to batch operations and accelerated the process 60 times faster.
  - Proposed internal access control layer transparency to improve maintainability.
  - Designed zero downtime data migration mechanism. Added a flag with special handling to enable data reprocessing without bringing down the service. Reduced the service downtime from 2 days to 0.
  - Introduced SNS message attribute to enable attribute filter with customized notification handling.
  - Proposed schema violation detection and data reprocessing. Notify the customer if a schema violation happened. The customer can decide whether to do data reprocessing for schema update or modify input data to align with the current schema.

- **National Tsing Hua University** — Hsinchu, Taiwan
  Research Assistant — *9/2015 - 6/2016*

  - Launched a website for demonstrating open source forum content.
  - Implemented a web crawler to fetch data and transform it into a customized excel file. Exploited the CAPTCHA vulnerability to enable the crawler to stay logged in.

Education

- **Purdue University** — West Lafayette, IN
  Master of Science in Computer Science — *Aug. 2017 – Dec. 2018*

- **National Tsing Hua University** — Hsinchu, Taiwan
  Bachelor of Science in Computer Science — *Sep. 2012 – Jun. 2016*

Technical Skills

- **Programming Languages**: Python(preference), Java, C/C++, SQL, bash/shell scripts, typescript
- **AWS (Amazon Web Service)**: SQS, SNS, DynamoDB, IAM, S3, CloudWatch, CDK, CloudFormation, ECS, EC2, Athena, Glue, API Gateway, Simple Workflow(SWF)
- **Other Experiences**: Git, Linux based system, REST API development, Docker, Relational Databases

Award

- **Information Security Computational Profession**: 7/120 applicants chosen to be the 2017 program candidates.
- **2015 Capture The Flag Competition**: Rank Top 3 in Taiwan, the top 10% among competitors over the world.

Projects

- **Penetration Testing | Vulnerability Detection**: 2/2015 - 1/2016 | 9/2017 - 12/2018
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  - **Self Learning Materials**: OverTheWire, Capture The Flag Competition, Flare-on.
  - **Independent Study**: Utilize the knowledge of Cryptography, Reverse Engineering, Pwn, Format String Attack, Web Exploitation, SQL Injection, etc., to explore information leakage and backdoors.
- **Machine Learning**: 9/2017 - 12/2018
  - **Common Classifiers (from scratch)**: KNN: Euclidean distance, Manhattan distance, Canberra distance; Decision Tree: ID3 algorithm; Perceptron: Vanilla/Basic, Average, Winnow
  - **Spam Filter**: Build Naive Bayes classifier and SVM classifier. Extract data of emails, use the appearances and frequencies of words as features to train the classifier.
  - **Handwritten Digits Recognition**: Implement the convolutional neural network in LeNet-5 architecture with TensorFlow to classify images.
- **Software Develop, Hack, and Patch**: 1/2018 - 4/2018
  - **Software Development**: Build a file transfer service in C, involving socket programming and multithreading. Backdoors planted with techniques of buffer overflow, format string attack, command injection.
  - **Hacking and Patching**: Trace other teams' code; look for vulnerabilities/ backdoors; patch the breaches found.
- **Android App Development**: 10/2013 - 12/2013
  - **Friends in the crowd**: Design Android Mobile App in Java. Use Gmail account to record user data and message history; Google Calendar creates activities; Google Map to locate the participants.