

# Ernest Chan

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## EDUCATION

**Rice University** - Houston, TX 08/2011 - Present

- Masters in Electrical Engineering, Data Science specialization. GPA: 3.81. Expected: Dec, 2016.
- BS in Electrical Engineering, 2015. GPA: 3.76. IEEE-HKN Honor Society. President's Honor Roll.
- Relevant coursework: machine learning, neural networks, artificial intelligence, probabilistic graphical models, object-oriented programming, algorithms, computer vision, databases, random processes, convex optimization, deep learning.
- Programming skills: Python, Java, Matlab, SQL, C, some Scala

## WORK EXPERIENCE

**Civitas Learning: Associate Data Scientist Intern** - Austin, TX 05/2016 - 08/2016

- Prototyped machine learning pipeline that predicts students' probability of successful course completion using their online data. Performed feature creation, course-based clustering, and model training/evaluation/interpretation. Used AWS and git.
- Algorithms used include tree ensembles, regularized regression, PCA, HDBSCAN, and outlier detection techniques.

**HKC Solutions: Engineering Intern** - Hong Kong 07/2015 - 08/2015

- Designed and implemented a clustering-based anomaly detection system using sensor data from apartments for the elderly. Tested algorithms include k-means, gaussian mixture models and divisive clustering algorithms.
- Collaborated with management to pitch the system to Singaporean housing officials.

**Jelec USA: Engineering Intern** - Houston, TX 06/2014 - 08/2014

- Performed load analysis for oil-rigs to determine power distribution design. Reported to and collaborated with CEO.

**Village Innovators: Chief Operations Officer** - Houston, TX 01/2013 - 12/2013

- Launched non-profit that teaches African students how to build sustainable technologies. Accepted by Rice University's start-up accelerator. Led engineering team for core product. Pitched to donors, created financial forecasts.

**PCCW: User Experience Intern** - Hong Kong 06/2012 - 08/2012

- Wire-framed and created an interactive demo for a fitness tracking Android mobile app.

## PROJECTS

**Object recognition in-class Kaggle Competition** (Machine Learning Course Project) 01/2016 - 04/2016

- Trained ensemble of convolutional neural networks to classify images in CIFAR-10 dataset with 93.3% accuracy. Also tried Adaboosted decision trees. Achieved 5th place with post-deadline submission in this class of 70 students.

**Algorithmic music composition neural network** (Neural Network Course Project) 04/2016

- Trained deep belief network, an unsupervised deep learning model, to compose MIDI piano folk music.

**Photo-based music discovery web-app** (Rice University Hackathon Project) 01/2016

- Winner of Best Use of Microsoft Tech award and was one of top 9 best project finalists.

**Exercise Classification Fitness Band** (Personal Project) 08/2015

- Implemented hidden Markov models to classify gym exercises using wrist-worn accelerometer and gyroscope data. Model works offline for 5 exercises, and achieves classification and rep-counting accuracy of 96% on test data.

**Capstone Design** (Senior Year Engineering Project) 08/2014 - 05/2015

- Prototyped Arduino-based module for a heart-failure treatment pump. Module integrates control logic for the pump, BLE communication with a phone, UART communication, and a SD card database. Featured on Texas Medical Center news.

**EKG signal peak detection** (Signals and Systems Course Project) 11/2013

- Used wavelet transform and DSP techniques to extract features from EKG signals and detect peaks.

## ADDITIONAL INFORMATION

- **Signals and systems course assistant:** Held weekly review sessions for this junior level course.
- **Extensive student government experience:** Residential college co-treasurer (\$50,000 budget); student association new student representative; high school student council president.
- **Online course instructor:** Created hip-hop dance course on Udemy.com with 300+ students.

Visit [ernestchan.github.io](http://ernestchan.github.io) for more information on projects and experience.