Chen Zhenghao

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Professional Experience

Calico Life Sciences. (USA) – Principal Machine Learning Engineer 09/17 – Present

- Developed models for modeling perturbations to cell state in large scale unbiased chemical and CRISPR screens. Deployed ML models for prioritization and selection of compounds for large scale chemical screens.
- Developed models for high-dimensional time series models for analyzing longitudinal studies on aging mouse physiology.
- Developed novel methods of analyzing in-situ multiplexed cell imaging as applied to the study of cellular microenvironment in various contexts.
- Developed state-of-the-art models for MHC binding prediction.

Coursera Inc. (USA) – Software Engineer, Senior Data Scientist 09/12 – 09/17

- Founding member of the analytics team and helped grow team of 20 data scientists/engineers
- Built key data infrastructure such as the in-house A/B testing platform which supported hundreds of experiments annually and the content recommendation system powering all aspects of content discovery in the product.
- Led the development of various data products such as the onboarding content discovery experience, weekly recommendation email, recommendations for course sequences etc.
- Led and supported internal research efforts to use machine learning to improve learning experience and content discovery. Developed statistical models for debiasing peer grading, automated feedback generation for programming assignments, recommendation models for courses / course sequences etc.
- Designed and carried out and published large scale studies on factors determining the effectiveness of online instruction and their implication on instructional design as well as the long-term impact of Massively Open Online Courses on learners.

Counsyl (USA) – Intern 06/12 – 09/12

- Improved error correction and accuracy of in-house Fragile X screening model.

Stanford AI Lab, DAGS Research Group (USA) 04/11 – 08/11

- Developed applications of probabilistic modelling to computational cancer biology and biomedical imaging with Prof. Daphne Koller.
- Developed a method for automatic feature extraction of image features from whole slide images of brain tumors.
- Identified new subtypes of glioblastoma multiforme with different survival and treatment characteristics.

Stanford AI Lab (USA) 06/10 – 12/11

- Developed models for unsupervised feature learning using deep neural networks for image recognition and speech recognition with Prof. Andrew Ng.

MIT CS AI Lab (USA) 07/05 – 08/05

- Worked on social network analysis of data involving physical interaction while preserving individual anonymity under Prof. Larry Rudolph.

Education

Stanford University (Stanford, CA) 09/09 - 06/13

- M.S. Computer Science (Artificial Intelligence and Biocomputation) (GPA 4.13 / 4)
- B.S. Computer Science, with distinction and departmental honors and minor in Mathematics (Overall GPA: 4.04 / 4, Major GPA: 4.10 / 4)

Awards

- Frederick E Terman Engineering Award (top 5% of Stanford Engineering seniors)
- President's Award for Academic Excellence in the Freshman Year (top 3% in class)

GRE: Quantitative: 800 / 800, Verbal 730 / 800, Writing 5.5 / 6

Relevant Coursework: Machine Learning and Statistical Learning Theory, Probabilistic Graphical Models, Statistics, Convex Optimization, Computational Biology

Publications and Talks

Composition and decomposition of GANs, YC Harn, Z Chen, V Jojic. arXiv Jan 2019.

Real-time programming exercise feedback in MOOCs, Z Chen, A Nguyen, A Schlender, J Ngiam. EDM 2017

Mapping the Pairwise Choices Leading from Pluripotency to Human Bone, Heart, and Other Mesoderm Cell Types, K Loh, A Chen, PW Koh, T Deng, R Sinha, J Tsai, A Barkal, K Shen, R Jain, R Morganti, SC Ng, N Fernhoff, B George, G Wernig, R Salomon, Z Chen, H Vogel, J Epstein, A Kundaje, W Talbot, P Beachy, LT Ang, I Weissman. Cell July 2016.

Who's Benefiting from MOOCs and Why?, Z Chen, B Alcorn, G Christensen, N Eriksson, D Koller, EJ Emanuel. Harvard Business Review September 2015.

What Matters, What Doesn't? A Coursera-Wide Look at Course Metrics, N Eriksson, A Parisi-Amon, Z Chen. Talk at 2015 Coursera Partners Conference, Irvine, CA.

Dissecting an Online Intervention for Cancer Survivors, Z Chen, PW Koh, P Ritter, K Lorig, E Bantum, S Saria. Health Educ. Behavior. 2014.

Retention and Intention in Massive Open Online Courses, D Koller, A Ng, CB Do, Z Chen. Educause Review June 2013.

Self-Driven Mastery in Massive Open Online Courses, CB Do, Z Chen, R Brandman, D Koller. MOOCs Forum September 2013.

Automated Population-scale Screening for Fragile X: Validation and Experience on 76,421 Samples, SA Patterson, MR Theilmann, Z Chen, IS Haque. Poster at AMP 2013

Tuned Models of Peer Assessments in MOOCs, C Piech, J Huang, Z Chen, CB Do, A Ng, D Koller. EDM 2013

A Graph Regularization Based Approach for Gene Scoring, Z Chen, D Koller. Stanford CS Honors Thesis 2012.

Sparse Filtering, J Ngiam, PW Koh, Z Chen, S Bhaskar, A Ng. NIPS 2011. Spotlight paper.

Learning Deep Energy Models, J Ngiam, Z Chen, PW Koh, A Ng. ICML 2011.

On Random Weights and Unsupervised Feature Learning, A Saxe, PW Koh, Z Chen, M Bhand, B Suresh, A Ng. ICML 2011.

Tiled Convolutional Neural Networks, QV Le, J Ngiam, Z Chen, D Chia, PW Koh, **A** Ng. NIPS 2010.

Lower Bound on the Time Complexity of Local Adiabatic Evolution, Z Chen, PW Koh, Z Yan. Phys. Rev. A 74, 2006.

Technical Skills

Languages: English, Mandarin (Native speaker of both, fluent writer and speaker)

Familiar with *nix environment and operating on AWS cloud

Programming languages: Fluent in Python, R, Javascript. Familiar with Scala, C, Matlab, Java

Additional skills: Implementing machine learning algorithms in production, MapReduce frameworks, relational databases and SQL

Other Activities

EcoTraining (South Africa) – Field Guide 04/09 – 05/09
Trained to be an safari field guide in the Karongwe Reserve in South Africa.

Informatics.RI (Singapore) – Co-founder 11/08 – 12/08
Planned and taught 14 one-day workshops introducing artificial intelligence, cryptography, programming and networking to over 100+ high/middle school students

Singapore Armed Forces – Operations Officer, 8th Signal Battalion 01/07 – 11/08
Awarded the Sword of Honor (top officer cadet in graduating class). Took part in the planning and execution of security operations for major international events in Singapore. Responsible for the administrative and training coordination for a Signal Battalion.