Chuankai An

PhD Candidate in Computer Science · Research Assistant

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Education

Dartmouth College — *Hanover, NH*

PhD. in Computer Science — *Fall 2013 - Fall 2019 (expected)*

- Specialization: applied machine learning, data mining and data science
- Advisor: Prof. Dan Rockmore, associate dean of the Faculty of Arts and Sciences

Peking University — *Beijing, China*

B.S. in Computer Science with minor in Statistics, GPA: 3.60/4.0 — *Fall 2009 - Summer 2013*

- Core CS courses: Intro to Machine Learning, Artificial Intelligence, Information Retrieval, Computational Linguistics, etc.
- Core Statistics courses: Stochastic Process, Statistical Inference, Multivariate Statistics, Real analysis, etc.
- Elective Finance courses: Principles of Economics, Intermediate Microeconomics, Intro to Financial Modeling
- Exchange student in Stockholm University, Sweden, Winter and Spring 2012

Research Experience

Dartmouth College — *Hanover, NH*

Grad Research Assistant, Dept. of Computer Science — *Fall 2013 - present*

- Analyzed national patient referral network for clustering, power law and other patterns. Build quantitative model for physicians' behaviors of referrals. Explored the effects of chronological referral path on the treatment outcome for patients.
- Applied deep neural networks and collaborative filtering to album recommendation with visual features, views and comments.
- Built user preference model with geographical open data for ranking list in local search.
- Parsed smartphone usage records to predict user behaviors and save battery energy.
- Built an indoor Visible Light Communication system and sensed body gestures.

Peking University — *Beijing, China*

Research Assistant, Information Retrieval Lab, school of EECS — *Spring 2011 - Summer 2013*

- Advisor: Associate Prof. Hongfei Yan
- Hosted a reading group about information retrieval and natural language processing.
- Collected tweets and extracted user emotional preference vector from LDA topic model. Validated that friends would exchange interesting topics through forwarding, sharing and other behaviors.
- Defended B.S. thesis: Topic model based sentiment analysis on social network.

University of California, Davis — *Davis, CA*

Research Assistant, Dept. of Electrical and Computer Engineering — *Summer 2012*

- Advisor: Prof. Chen-Nee Chuah
- Predicted network data flow with Kalman Filter and time series analysis.

Work Experience

Facebook — *New York, NY*

PhD Machine Learning Internship, Instagram Explore Team — *Summer 2017*

- Mentor: Hongzhao Huang
- Developed rules of graph mining for larger inventory of interesting videos.
- Generated user embeddings with deep neural networks to get a list of similar users.
- Implemented personalized video recommendation with ranking algorithms on candidates.
- Significantly attracted more immersive users with longer time spent.

A9.com — *Palo Alto, CA*

R&D internship, Advertising Platform & Analytics Team — *Summer 2016*

- Supervisor: Pavel Kalinin
- Developed data pipeline with Pig on Hadoop platform for first sign-in advertising campaign.
- Attracted and detected more than 500 first sign-in customers with limited daily budget.
- Predicted whether a user will sign in after ad-click on the target ads with classification models.

Grants, Honors & Awards

2017-2018	**Funded researcher**, NIH Grant U01AG046830	*Dartmouth College*
2016	**Recipient**, Neukom Institute Travel Grants	*Dartmouth College*
2016	**Recipient**, Dartmouth Grad Travel Grants	*Dartmouth College*
2015	**Winner**, Best Demo Award	*MobiSys*
2015	**Winner**, Best Video Award	*MobiCom*
2015	**Winner**, Best Poster Award	*Dartmouth CSRS*
2013 - present	**Recipient**, Dartmouth PhD Scholarship	*Dartmouth College*
2009-2013	**Winner**, Honors Graduation, Academic Innovation Award, National Scholarship, CURE research fund, First Prize of National Mathematical Modeling Contest, Second Prize of ACM-ICPC PKU Contest	*Peking University*

Skills

Programming, Platform & Tools

- Python, C, C++, Java, Android, Scala, Matlab, R, SAS, Lua, SQL, Pig, Hive, Presto, Hadoop, Spark, AWS, Docker, UNIX/Linux, Dtrace, MDB

Framework & Tooklit for Modeling

- Torch, TensorFlow, Keras, NLTK, CoreNLP, Weka, Scikit-learn, QuantLib

Selected Publications

Referral Paths in the U.S. Patient Referral Network

- Chuankai An, A.J.O'Malley, D. Rockmore. (In submission)

Content Modeling with Recurrent Neural Networks for Personalized Album Recommendation

- Chuankai An, C. Fang, D. Rockmore. (In submission)

Analysis of the U.S. Patient Referral Network

- Chuankai An, A.J.O'Malley, D. Rockmore, C.Stock. Journal of Statistics in Medicine, 37.5 (2018): 847-866. (link)

Wikipedia Verification Check: A Chrome Browser Extension

- R. Harder, A. Velasco, M. Evans, Chuankai An, D. Rockmore. Wiki workshop of WWW 2017. (link)

Improving Local Search with Open Geographic Data

- Chuankai An, D. Rockmore. OD4LS 2016, in conjunction with WWW 2016. (link)

Predicting Phone Usage Behaviors with Sensory Data using a Hierarchical Generative Model

- Chuankai An, D. Rockmore. MLSDA workshop of PAKDD 2016. (link)

Visible Light Knows Who You Are

- Chuankai An, T. Li, Z. Tian, A. T. Campbell, and X. Zhou. VLCS 2015. (link)

Human Sensing Using Visible Light Communication

- T. Li, Chuankai An, Z. Tian, A. T. Campbell, and X. Zhou. MobiCom 2015. (link)

Real-Time Screen-Camera Communication Behind Any Scene

- T. Li, Chuankai An, X. Xiao, A. T. Campbell, and X. Zhou. MobiSys 2015. (link)

Service and Activities

2017-2018 **Member**, Dartmouth Grad Student Council & Dartmouth Grad Academic Committee. *Dartmouth College*

2017 **Invited speaker**, Dartmouth DINR group *Dartmouth College*

2016 **Invited visitor**, Google PhD Summit *Cambridge, MA*

2015 **Invited speaker**, Amazon Grad Research Symposium *Seattle, WA*

2014-2015 **Vice President**, Dartmouth CSSA *Dartmouth College*

Teaching Experience

2016 **Guest Lecturer**, Software Design & Implementation *Dartmouth College*

2013-2015 **Teaching Assistant**, Computer Networks, Discrete Math, Software Design & Implementation *Dartmouth College*