Nationality: Dutch – +1 626-586-9659 – stephan@caltech.edu – www.stephanzheng.com

STEPHAN TAO ZHENG

EDUCATION

CALIFORNIA INSTITUTE OF TECHNOLOGY – PHD PHYSICS – 2013 - NOW (EXPECTED: JUNE 2018)
• efficient and robust deep learning • imitation learning • reinforcement learning • multi-agent systems
• advisor: Professor Yisong Yue

UNIVERSITY OF CAMBRIDGE, ST EDMUND'S COLLEGE – MAST MATHEMATICS – MERIT – 2012
• mathematical finance • optimal investment • operations research • knot theory

UTRECHT UNIVERSITY – M.SC. THEORETICAL PHYSICS – GPA 4.0/4.0 – CUM LAUDE – 2011
• research thesis: 'Exotic path integrals and dualities' • advisor: Professor Robbert Dijkgraaf (IAS Princeton)

HARVARD UNIVERSITY – VISITING GRADUATE STUDENT – GPA 3.76 / 4.0 – 2010
• probability theory • stochastic processes • differential geometry • particle physics • string theory

UTRECHT UNIVERSITY – B.SC. PHYSICS, MATHEMATICS – GPA 4.0/4.0 – CUM LAUDE – 2009
• research thesis: 'Screening of heterogeneous particles' • advisor: Professor Rene van Roij

HONORS AND PRIZES

LORENTZ PRIZE - ROYAL DUTCH SOCIETY OF SCIENCES – 2011
• award for excellence in theoretical physics and research thesis • 1 annual national recipient

HUYGENS SCHOLARSHIP - GOVERNMENT OF THE NETHERLANDS – 2009, 2011
• selective national merit scholarship (<10% selected) • awarded twice for fully funded study abroad

QUALCOMM INNOVATION FELLOWSHIP FINALIST - 2017
• top 10% selected

RESEARCH EXPERIENCE

RESEARCH ASSISTANT – MACHINE LEARNING GROUP, CALIFORNIA INSTITUTE OF TECHNOLOGY – 2014 - NOW
• research interests: spatiotemporal learning, deep learning, reinforcement learning, multi-agent learning
• thesis: structured imitation and reinforcement learning for multi-agent systems

STUDENT RESEARCHER – STRING THEORY GROUP – UTRECHT UNIVERSITY – 2011
• thesis research: duality computations and proofs for exotic path integrals of dual particle physics / superstring models

UNDERGRADUATE RESEARCHER – CONDENSED MATTER THEORY GROUP – UTRECHT UNIVERSITY – 2009
• thesis research: model development and simulations in C++ for in-homogeneously charged meso-particles

TEACHING / RELEVANT WORK EXPERIENCE

RESEARCH INTERN – GOOGLE BRAIN – MOUNTAIN VIEW – 2016
• natural language understanding • question answering on Wikipedia articles • worked with: Samy Bengio, Andrew Dai

SOFTWARE ENGINEERING INTERN – GOOGLE – MACHINE PERCEPTION TEAM – MOUNTAIN VIEW – 2015
• making deep neural networks robust against natural and adversarial distortions
• achieved significant improvements in deep neural network performance on noisy visual data • CVPR paper published
• worked with: Yang Song, Ian Goodfellow, Thomas Leung

QUANTITATIVE ANALYST INTERN – BANK OF AMERICA MERRILL LYNCH – LONDON – 2013
• developed "statistical bootstrap analysis" tool in the Commodities Product Valuation Group
• performed theoretical research and development in C++ and VBA • applied tool to exotic derivative pricing

TEACHING ASSISTANT – CALIFORNIA INSTITUTE OF TECHNOLOGY – 2013 - NOW
• advanced machine learning (Winter 2016)
• classical mechanics, electromagnetism and waves (Fall 2014, Winter 2015)

TEACHING ASSISTANT – UTRECHT UNIVERSITY – 2006 - 2009

• courses in theoretical physics and mathematics, including classical mechanics, statistical mechanics and Fourier theory

CONFERENCE PUBLICATIONS

GENERATIVE MULTI-AGENT BEHAVIORAL CLONING
E. Zhan, **S. Zheng**, P. Lucey, Y. Yue, *In submission*

DETECTION OF ADVERSARIAL EXAMPLES VIA NEURAL FINGERPRINTING
S. Zheng*, S. Dathathri*, R. Murray, Y. Yue, *In submission (* equal contribution)*

MULTI-RESOLUTION TENSOR LEARNING FOR LARGE-SCALE SPATIAL DATA
S. Zheng, R. Yu, Y. Yue, *In submission*

LONG-TERM FORECASTING USING TENSOR-TRAIN RNNS
R. Yu*, **S. Zheng***, A. Anandkumar, Y. Yue, *In submission (* equal contribution)*

STRUCTURED EXPLORATION VIA DEEP HIERARCHICAL COORDINATION
S. Zheng, Y. Yue, *In submission.*

THE HEP.TRKX PROJECT: DEEP LEARNING FOR PARTICLE TRACKING
A. Tsaris, D. Anderson, P. Calafiura, G. Cerati, S. Farrell, L. Gray, J. Kowalkowski, M. M., Prabhat, P. Pentzouris, M. Spiropoulou, J. Vlimant, **S. Zheng**, ACAT 2017, *in submission*

HEP.TRKX PROJECT: DNNS FOR HL-LHC ONLINE AND OFFLINE TRACKING
S. Farrell, A. Tsaris, D. Anderson, P. Calafiura, G. Cerati, S. Farrell, L. Gray, J. Kowalkowski, M. M., Prabhat, P. Pentzouris, M. Spiropoulou, A. Tsaris, J. Vlimant, **S. Zheng**, Connecting The Dots / Intelligent Trackers 2017

GENERATING LONG-TERM TRAJECTORIES USING DEEP HIERARCHICAL NETWORKS
S. Zheng, Y. Yue, *Neural Information Processing Systems (NIPS) 2016*

IMPROVING THE ROBUSTNESS OF DEEP NEURAL NETWORKS VIA STABILITY TRAINING
S. Zheng, Y. Song, I. Goodfellow, T. Leung, *IEEE Conference on Computer Vision and Pattern Recognition 2016*

SCREENING OF HETEROGENEOUS SURFACES: CHARGE RENORMALIZATION OF JANUS PARTICLES
N. Boon, E. C. Gallardo, **S. Zheng**, E. Eggen, M. Dijkstra, R. van Roij, *J. Phys.: Cond. Matter 22 (2010) 104104*

WORKSHOP PUBLICATIONS

LONG-TERM FORECASTING USING TENSOR-TRAIN RNNS
R. Yu*, **S. Zheng***, A. Anandkumar, Y. Yue, *Time-series workshop NIPS 2017,* ***best paper award.***

PARTICLE TRACK RECONSTRUCTION WITH DEEP LEARNING
S. Farrell, A. Tsaris, D. Anderson, P. Calafiura, G. Cerati, S. Farrell, L. Gray, J. Kowalkowski, M. M., Prabhat, P. Pentzouris, M. Spiropoulou, A. Tsaris, J. Vlimant, **S. Zheng**, *Deep Learning in Physical Sciences, NIPS 2017*

MAGNET: GENERATING LONG-TERM MULTI-AGENT TRAJECTORIES
E. Zhan, **S. Zheng**, Y. Yue, *Bayesian Deep Learning, NIPS 2017*

MEASURING THE ROBUSTNESS OF NEURAL NETWORKS VIA MINIMAL ADVERSARIAL EXAMPLES
S. Dathahiri, **S. Zheng**, S. Gao, R. Murray, *Deep Learning: Bridging Theory and Practice, NIPS 2017*

MULTI-AGENT COUNTERFACTUAL REGRET MINIMIZATION FOR PARTIAL-INFORMATION COLLABORATIVE GAMES
M. Hartley, **S. Zheng**, Y. Yue, *Learning in the Presence of Strategic Behavior, NIPS 2017*

LEARNING CHAOTIC DYNAMICS USING TENSOR RECURRENT NEURAL NETWORKS
R. Yu*, **S. Zheng***, *Deep structured prediction ICML 2017*

SCALABLE TRAINING OF INTERPRETABLE SPATIALLATENT FACTOR MODELS
S. Zheng, Y. Yue, *Workshop on Non-convex Optimization for Machine Learning: Theory and Practice at NIPS 2015*

LONG-TERM PLANNING USING HIERARCHICAL MEMORY NETWORKS
S. Zheng, Y. Yue, *Large-scale Sports Analytics, KDD 2016*

ACADEMIC SERVICE

REVIEWER

- COMPUTING AND SOFTWARE FOR BIG SCIENCE (SPRINGER), 2017
- NEURAL INFORMATION PROCESSING SYSTEMS (NIPS), 2016, 2017
- MACHINE LEARNING JOURNAL (SPRINGER), 2016
- INTERNATIONAL CONFERENCE ON MACHINE LEARNING (ICML), 2017, 2018
- COMPUTER VISION AND PATTERN RECOGNITION (CVPR), 2017, 2018
- INTERNATIONAL CONFERENCE ON COMPUTER VISION (ICCV), 2017
- EUROPEAN CONFERENCE ON COMPUTER VISION (ECCV), 2018
- INTERNATIONAL CONFERENCE ON LEARNING REPRESENTATIONS (ICLR), 2018
- IEEE TRANSACTIONS ON COMPUTATIONAL INTELLIGENCE AND AI IN GAMES, 2017

INVITED TALKS

- INFORMATION THEORY AND APPLICATIONS (ITA 2018)
- UCLA CS COLLOQUIUM, NOVEMBER 2017
- SUGIYAMA MACHINE LEARNING GROUP (UNIVERSITY OF TOKYO), JULY 2016
- DIDI CHUXING RESEARCH (BEIJING), JULY 2017
- BEIJING UNIVERSITY, JULY 2017
- SHANGHAI JIAOTONG UNIVERSITY, JULY 2017
- ZHEJIANG UNIVERSITY, JULY 2017

PRESS COVERAGE

- HTTPS://WWW.DUB.UU.NL/NL/ARTIKEL/UU-SCOORT-MET-AFSTUDEERPRIJZEN
- HTTPS://WWW.DUIC.NL/ALGEMEEN/JONG-TALENT-AFSTUDEERPRIJS-VOOR-DRIE-UTRECHTSE-STUDENTEN/
- MANPOWER GROUP, THE NETHERLANDS. "THE MONTH OF INTELLIGENCE: ON THE FUTURE OF ARTIFICIAL INTELLIGENCE", NOVEMBER 2016

SKILLS

Python – C++ – SQL – Linux – Mathematica

Fluent: Dutch, English – Moderate: German, French, Mandarin Chinese, Latin