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prepared: December 9, 2018

EDUCATION

University of Pennsylvania

Ph.D. Candidate, Neuroscience

Advisor: Danielle S. Bassett, Ph.D.

Expected Date of Completion: Spring 2019

2013–Current
Philadelphia, PA

Washington University in St. Louis

B.S. in Computer Science & Chinese

Minor in Physics

Graduated with Engineering Honors, Cum Laude

2007–2011
St. Louis, MO

RESEARCH EXPERIENCE

Tel Aviv University

Research Assistant

Advisor: Matti Mintz, Ph.D.

Computational modeling of the cerebellar microcircuit for sequential learning

2012
Tel Aviv, Israel

Tel Aviv University

Research Assistant

Advisor: Ehud Gazit, Ph.D.

Implemented and refined a protocol for self-assembling nanospheres

Winter 2011
Tel Aviv, Israel

Technion University

Research Assistant

Advisor: Nahum Shimkin, Ph.D.

Implemented a machine learning based multilayer flight simulator framework

Summer 2010
Haifa, Israel

Washington University in St. Louis

Research Assistant

Advisor: William Smart, Ph.D.

Designed framework for BCI-based control of simulated robotic prostheses

2008–2009
St. Louis, MO

PUBLICATIONS

Network constraints on learnability of probabilistic motor sequences

Ari E. Kahn, Elisabeth A. Karuza, Jean M. Vettel, and Danielle S. Bassett. In: *Nature Human Behavior* 2, pp. 936-947 (2018).

Structure from noise: Mental errors yield abstract representations of events

Chris W. Lynn, Ari E. Kahn, and Danielle S. Bassett. In: *arXiv* (2018).

Modular Segregation of Structural Brain Networks Supports the Development of Executive Function in Youth

Graham L. Baum, Rastko Ciric, David R. Roalf, Richard F. Betzel, Tyler M. Moore, Russell T. Shinohara, Ari E. Kahn, Simon N. Vandekar, Petra E. Rupert, Megan Quarmley, Philip A. Cook, Mark A. Elliott, Kosha Ruparel, Raquel E. Gur, Ruben C. Gur, Danielle S. Bassett, and Theodore D. Satterthwaite. In: *Current Biology* 27.11, p. 1561 (2017).

Structural Pathways Supporting Swift Acquisition of New Visuomotor Skills

Ari E. Kahn, Marcelo G. Mattar, Jean M. Vettel, Nicholas F. Wymbs, Scott T. Grafton, and Danielle S. Bassett In: *Cerebral Cortex* 27.1, pp. 173–184 (2017).

Process reveals structure: How a network is traversed mediates expectations about its architecture

Elisabeth A. Karuza, **Ari E. Kahn**, Sharon L. Thompson-Schill, and Danielle S. Bassett. In: *Scientific Reports* 7.1, p. 12733 (2017).

Role of graph architecture in controlling dynamical networks with applications to neural systems

Jason Z. Kim, Jonathan M. Soffer, **Ari E. Kahn**, Jean M. Vettel, Fabio Pasqualetti, and Danielle S. Bassett. In: *Nature Physics* (2017).

Cliques and cavities in the human connectome

Ann E. Sizemore, Chad Giusti, **Ari Kahn**, Jean M. Vettel, Richard F. Betzel, and Danielle S. Bassett. In: *Journal of Computational Neuroscience*, pp. 1–31 (2017).

Individual Differences in Learning Social and Non-Social Network Structures

Steven H. Tompson, **Ari E. Kahn**, Emily B. Falk, Jean M. Vettel, and Danielle S. Bassett. In: *Journal of Experimental Psychology: Learning, Memory, and Cognition*. In Press. (2018)

Developmental increases in white matter network controllability support a growing diversity of brain dynamics

Evelyn Tang, Chad Giusti, Graham L. Baum, Shi Gu, Eli Pollock, **Ari E. Kahn**, David R. Roalf, Tyler M. Moore, Kosha Ruparel, Ruben C. Gur, Raquel E. Gur, Theodore D. Satterthwaite, and Danielle S. Bassett. In: *Nature Communications* 8.1, p. 1252 (2017).

Inter-regional ECoG correlations predicted by communication dynamics, geometry, and correlated gene expression

Richard F. Betzel, John D. Medaglia, **Ari E. Kahn**, Jonathan Soffer, Daniel R. Schonhaut, and Danielle S. Bassett. In: *arXiv* (2015).

Controllability of structural brain networks

Shi Gu, Fabio Pasqualetti, Matthew Cieslak, Qawi K. Telesford, Alfred B. Yu, **Ari E. Kahn**, John D. Medaglia, Jean M. Vettel, Michael B. Miller, Scott T. Grafton, and Danielle S. Bassett. In: *Nature Communications* 6 (2015).

TALKS

Network Constraints on Learnability of Probabilistic Motor Sequences

Ari E. Kahn, Elisabeth A. Karuza, Jean M. Vettel, Danielle S. Bassett. CompleNet. March 4–8, 2018, Boston, Massachusetts, USA.

Network Constraints on Learnability of Probabilistic Motor Sequences

Ari E. Kahn, Elisabeth A. Karuza, Jean M. Vettel, Danielle S. Bassett. SIAM Workshop on Network Science. July 12–13, 2018, Portland, Oregon, USA.

POSTERS

Beyond graph topology: Walk structure influences cluster-level surprisal effects in an on-line learning task

Elisabeth A. Karuza, **Ari E. Kahn**, Sharon L. Thompson-Schill, Danielle S. Bassett. Psychonomics. November 17–20, 2016, Boston, Massachusetts, USA.

Structural Correlates of Individual Differences in Motor Sequence Learning

Ari E. Kahn, Marcelo G. Mattar, Jean M. Vettel, Nicholas F. Wymbs, Scott T. Grafton, Danielle S. Bassett. Society for Neuroscience, November 12–16, 2016, San Diego, California, USA.

A model of sequential learning in the cerebellum

Ari E. Kahn, Ari Magal, Roni Hogri and Matti Mintz. Society for Neuroscience, October 13–17, 2012, New Orleans, Louisiana, USA.

AWARDS

SIAM Student Travel Award

Spring 2018

Jameson-Hurvich Travel Award

Fall 2016

TEACHING AND MENTORING

Teaching Assistant

Introduction to Brain and Behavior

Spring 2016

Led weekly undergraduate recitation section and wrote testing material

OUTREACH

Upward Bound

Summer Neuroscience Elective

Head Coordinator

2016–2018

Instructor

2014–2015

Penn Neuroscience Public Lecture Series

Committee Member

2014–2017

Neuroscience Elementary School Outreach Program

Instructor

2013–2017

PROFESSIONAL AFFILIATIONS

Society for Neuroscience

SIAM

SKILLS

Programming

Python, R, Matlab, JavaScript, C, C++, LaTeX

Image Processing

FSL, ANTs, FreeSurfer, DTI Studio