Matthew K. Mukerjee

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Education

Carnegie Mellon University, Pittsburgh, PA

Ph.D., Computer Science, *expected May 2018*

- Advisor: Srinivasan Seshan

M.S., Computer Science, *May 2015*

- Advisor: Srinivasan Seshan

Cornell University, Ithaca, NY

M.Eng., Computer Science, *May 2011*

- Advisor: Daniel Freedman
- Project: *Cause and effect of emergent packet chains on high-speed wide-area networks*

Dartmouth College, Hanover, NH

B.A., Cum Laude *June 2010*
Major: Computer Science – High Honors

- Advisor: Andrew T. Campbell and Tanzeem Choudhury
- Thesis: *NeuroPhone: Brain-Mobile Phone Interface using a Wireless EEG Headset*

Major: Asian and Middle Eastern Studies (Japan)

- Advisor: James Dorsey

Research Interests

computer networks: datacenter networks, video / content delivery, network architecture, mobile

Awards

Graduate

- ACM CoNEXT Best Paper Award, 2017
- ACM SIGCOMM Best Paper Award, 2014
- Pradeep Sindhu Computer Science Fellowship, *2013-2014*

Undergraduate

- Second Honor Group, *2*008 - 2010
- Kemeny Prize (Second Prize in Individual Innovation / Design): "NeuroPhone: Brain-Mobile Phone Interface using a Wireless EEG Headset," *2010*
- Kemeny Prize (First-Place in Team Innovation): "Xenotarsix: A Yalnix-based Operating System with Threads, Caching to Disk, and Additional Functionality," *2009*
- Francis L. Town Scientific Prize for Computer Science, *2008*
- Academic Citations in Coursework: *Honors Thesis Research*, *Operating Systems*, *Computer Architecture*, *Software Design and Implementation*, and *Intro to CS*.

Industry

Google, Seattle, WA

Software Engineering Intern **May 2012 – August 2012**

Worked with Ben Greenstein in Matt Welsh's "Mobile Speed" group building and experimenting with an A/B testing framework for a mobile web data compression proxy (Flywheel, NSDI '15) to understand the effects of combinations of optimizations.

Publications

[1] **Mukerjee, M. K.**, I. N. Bozkurt, D. Ray, B. Maggs, S. Seshan, H. Zhang. Redesigning CDN-Broker Interactions for Improved Content Delivery. *CoNEXT 2017*, December 2017. **Best Paper Award**

[2] C. Li, **M. K. Mukerjee**, D. G. Andersen, S. Seshan, M. Kaminsky, G. Porter, A. C. Snoeren. Using Indirect Routing to Recover from Network Traffic Scheduling Estimation Error. *ANCS 2017*, May 2017.

[3] **Mukerjee, M. K.**, I. N. Bozkurt, B. Maggs, S. Seshan, H. Zhang. The Impact of Brokers on the Future of Content Delivery. *HotNets 2016*, November 2016.

[4] Liu, H., **M. K. Mukerjee**, C. Li, N. Feltman, G. Papen, S. Savage, S. Seshan, G. M. Voelker, D. G. Andersen, M. Kaminsky, G. Porter, A. C. Snoeren. Scheduling Techniques for Hybrid Circuit/Packet Networks. *CoNEXT 2015*, December 2015. **Best Paper Nominee**

[5] **Mukerjee, M. K.**, D. Naylor, J. Jiang, D. Han, S. Seshan, H. Zhang. Practical, Real-time Centralized Control for CDN-based Live Video Delivery. *SIGCOMM 2015*, August 2015.

[6] Wang, R., **M. K. Mukerjee**, M. Veloso, S. Seshan. Wireless Map-Based Handoffs for Mobile Robots. *ICRA 2015*, May 2015.

[7] Naylor, D., **M. K. Mukerjee**, P. Steenkiste. Balancing Accountability and Privacy in the Network. *SIGCOMM 2014*, August 2014. **Best Paper Award**

[8] Naylor, D., **M. K. Mukerjee**, P. Agyapong, R. Grandl, R. Kang, M. Machado, S. Brown, C. Doucette, H. Hsiao, D. Han, T. Kim, H. Lim, C. Ovon, D. Zhou, S. Lee, Y. Lin, C. Stuart, D. Barrett, A. Akella, D. Andersen, J. Byers, L. Dabbish, M. Kaminsky, S. Kiesler, J. Peha, A. Perrig, S. Seshan, M. Sirbu, P. Steenkiste. XIA: Architecting a More Trustworthy and Evolvable Internet. *ACM SIGCOMM Computer Communication Review*, July 2014.

[9] **Mukerjee, M. K.**, D. Han, S. Seshan, and P. Steenkiste. Understanding Tradeoffs in Incremental Deployment of New Network Architectures. *CoNEXT 2013*, December 2013.

[10] Campbell, A. T., T. Choudhury, S. Hu, H. Lu, **M. K. Mukerjee**, M. Rabbi, R. D. S Raizada. NeuroPhone: Brain-Mobile Phone Interface using a Wireless EEG Headset. *SIGCOMM 2010 – MobiHeld 2010*, August 2010.

Invited Talks, Posters, and Demos

[11] *Poster:* Ware, R., **M. K. Mukerjee**, J. Sherry, S. Seshan. Battle for Bandwidth: Fairness and Heterogeneous Congestion Control. *NSDI 2018*, April 2018.

[12] *Invited Poster:* VDX: A Marketplace for Video Delivery. *Google Networking Research Summit*, February 2017.

[13] *Invited Talk:* Practical, Real-time Centralized Control for CDN-based Live Video Delivery. *DIMACS NSF Algorithms in the Field (AiTF) Workshop on Algorithms for Software-Defined Networking*, June 2016.

[14] *Invited Talk:* Practical, Real-time Centralized Control for CDN-based Live Video Delivery. *Microsoft Research Graduate Student Summit on Mobility, Systems, and Networking*, February 2016.

[15] *Invited Tutorial / Demo / Poster:* **Mukerjee, M. K.**, Y. Wu, D. Barrett, S. Seshan. Tutorial: Introduction to XIA Future Internet Architecture Protocol Suite. *GENI Engineering Conference 21*, October 2014.

[16] *Poster:* **Mukerjee, M. K.**, J. Hong, J. Jiang, D. Naylor, D. Han, S. Seshan, H. Zhang. Enabling Near Real-Time Central Control for Live Video Delivery in CDNs. *SIGCOMM 2014*, August 2014.

[17] *Invited Presentation / Demo:* **Mukerjee, M. K.**, D. Naylor, P. Steenkiste, D. Andersen, D. Eckhardt, S. Kiesler, J. Peha, A. Perrig, S. Seshan, M. Sirbu, H. Zhang, A. Akella, J. Byers. eXpressive Internet Architecture. *GENI Engineering Conference 15*, October 2012.

[18] *Demo:* Grandl, R., D. Han, S. B. Lee, H. Lim, M. Machado, **M. K. Mukerjee**, D. Naylor. Supporting Network Evolution and Incremental Deployment with XIA. *SIGCOMM 2012*, August 2012.

[19] *Invited Poster:* Naylor, D., D. Han, **M. K. Mukerjee**, S. B. Lee, P. Steenkiste. XIA: An Evolvable, Expressive, and Secure Internet Architecture. *GENI Engineering Conference 12*, November 2011.

Professional Activities

- NSDI 2018 External Reviewer
- ANCS 2016 Poster Selection Committee
- National Science Foundation NeTS Early-Career Investigators (NeTS-ECI) Workshop. By Invitation Only. July 2015.

Teaching

Carnegie Mellon University

Teaching Assistant:

Spring 2016	**Comp. Music Sys. and Info. Proc.**	*Roger Dannenberg*
Fall 2013	**Undergraduate Networks**	*Peter Steenkiste*
Fall 2012	**Graduate Networks**	*Peter Steenkiste*

Press Coverage

- The Dartmouth. 2011. New smartphone reads callers' neural signals
- CBS Sunday Morning. 2011. The Next Step in Bionics
- New York Times Magazine. 2011. The Cyborg in Us All
- Dartmouth Now. 2010. Dartmouth Professors Receive NSF Grant for Neural Phone
- The Dartmouth. 2010. Prof.'s research inspires 'EyePhone'
- MIT Technology Review. 2010. Mobile Phone Mind Control

Other Interests

playing music (electric bass, guitar, piano), audio engineering (recording and mixing), video games, Japanese language and culture.

Srinivasan Seshan
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Computer Science
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Peter Steenkiste
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Alex C. Snoeren
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