

CHINMAY KULKARNI

chinmayk@cs.cmu.edu · (412) 268-5831
5000 Forbes Avenue Pittsburgh, PA 15213

I am an Assistant Professor in the Human-Computer Interaction Institute at Carnegie Mellon University. My research creates new pedagogical systems that leverage peer processes at massive scale to improve learning gains. My research systems for large-scale peer assessment and discussion have been used by more than 100,000 students in over a hundred Massive Open Online Classrooms (MOOCs). In addition, other researchers in HCI and social computing have adopted code (e.g. UC San Diego), and many others have built on its insights (e.g. Coursera, Georgia Tech etc).

EMPLOYMENT Carnegie Mellon University, Pittsburgh, PA 2015 - current
Assistant Professor, Human-computer Interaction Institute
School of Computer Science

EDUCATION Stanford University, Stanford, CA 2010 - 2015
Doctor of Philosophy, Computer Science
Advisors: Scott Klemmer and Michael Bernstein

BITS Pilani, Pilani, India 2005 - 2009
Bachelor of Engineering, Computer Science

PATENTS **Identifying Topically-related Phrases In A Browsing Sequence**
US 8,655,648 B2
Framework that facilitates third party integration of applications into a search engine
US 2012/0166276 A1; pending

CONSULTING **Eloquent Labs (eloquent.ai)** Aug 2016-present
Advice on creating scalable systems for combining human and machine intelligence for open-domain customer tasks

AWARDS & HONORS Siebel Scholar, 2014
Doctoral Consortium, UIST 2014
Google Influential Paper Award 2014
Facebook Graduate Fellowship Finalist, 2013
Best Paper Award: Eurovis 2013

RESEARCH PROJECTS & IMPACT **MOOC-scale Peer assessment** My collaborators at Coursera and I created the first MOOC-scale peer assessment platform. More than a hundred massive classes on Coursera have used it to critique work in disciplines as varied as programming, design, poetry and finance.

Talkabout: Small-group discussions in massive classes I am the lead creator of Talkabout (<https://talkabout.stanford.edu>), a small-group real time video discussion system for MOOCs. Over 5,000 students from 135 countries and fifteen MOOCs on the Coursera and EdX platforms have used it to discuss topics as varied as organizational behavior, psychology, philanthropy, womens health rights, creativity, and designing effective experiments.

PeerStudio: Fast peer feedback for revision and mastery I am the lead creator of PeerStudio (www.peerstudio.org), a system that leverages the scale of online classes to provide fast feedback and create opportunities for revision. In a typical online class, the median student receives feedback within twenty minutes of submission. Three months after launch, it has been used by 3,500 students in two MOOCs, and by several classes at three universities.

**JOURNAL
ARTICLES**

Peer and Self Assessment in Massive Online Classes; Chinmay Kulkarni, Wei, K. P., Le H., Chia D., Papadopoulos K., Cheng J., Koller D, Scott Klemmer; in *TOCHI: ACM Transactions on Computer-Human Interaction, Vol 20, Issue 6 (2013)*

**INVITED BOOK
CHAPTERS**

When the world learns online: Challenges & Opportunities; Chinmay Kulkarni and Kim J., in *Foundations and Trends in Human-Computer Interaction* (to appear 2016).

Peer Assessment & Peer Learning; Chinmay Kulkarni, in *Handbook of Learning Analytics and Educational Data Mining*, published by the International Educational Data Mining Society (to appear 2016).

**PEER-
REVIEWED
CONFERENCE
PAPERS**

Adam Stankiewicz, Chinmay Kulkarni. 2016. \$1 Conversational Turn Detector. *Proceedings of ACM Learning at Scale (2016), March, 2016. (To Appear)*

Chinmay Kulkarni, Michael Bernstein, Scott Klemmer. 2015. PeerStudio: Rapid peer feedback emphasizes iteration and improves performance. *Proceedings of ACM Learning at Scale (2015), March, 2015.*

Yasmine Kotturi, Michael Bernstein, Chinmay Kulkarni, Scott Klemmer. 2015. Structure and messaging techniques for online peer learning systems that increase stickiness. *Proceedings of ACM Learning at Scale (2015), March, 2015.*

Chinmay Kulkarni, Julia Cambre, Yasmine Kotturi, Michael Bernstein, Scott Klemmer. 2015. Talkabout: Making Distance Matter with Small Groups in Massive Classes. *Proceedings of CSCW: ACM Conference on Computer Supported Collaborative Work (2015), March, 2015.*

Chinmay Kulkarni, Socher, R., Michael Bernstein, Scott Klemmer. 2014. The identify-verify pattern: combining peer assessment with algorithmic scoring to scale short-answer grading. *Proceedings of ACM Learning at Scale (2014), March, 2014.*

Lin S., Fortuna J., Chinmay Kulkarni, Maureen Stone, Jeffrey Heer. 2013. Selecting Semantically-Resonant Colors for Data Visualization. *Proceedings of Eurographics Conference on Visualization (EuroVis) 2013. Best Paper Award*

Chinmay Kulkarni, Ed H. Chi. 2013. All the News that's Fit to Read: A Study of Social Annotations for News Reading. *Proceedings of CHI: ACM Conference on Human Factors in Computing Systems (2013). Google Influential Paper 2013*

Chinmay Kulkarni, Steven Dow, Scott Klemmer. 2012. Early and Repeated Exposure to Examples Improves Creative Work. *Proceedings of the 34th Meeting of the Cognitive Science Society (CogSci 2012).*

N. Abadala, Chinmay Kulkarni, Joseph Joy, Naren Datha, Aditya Sankar, and Rebecca Walton. 2010. An Interactive Multimedia Framework for Digital Heritage Narratives. *Proceedings of the ACM Multimedia International Conference, 2010 (Short paper).*

Sâsa Tomic, Cristian Perfumo, Chinmay Kulkarni, A Armejach, Osman A. Unsal, Adrian Cristal, Mateo Valero. 2009. EazyHTM– Eager-Lazy Hardware Transactional Memory. *IEEE/ACM International Symposium on Microarchitecture (MICRO) 2009*.

**EXTENDED
ABSTRACTS**

Julia Cambre, Chinmay Kulkarni, Michael Bernstein, Scott Klemmer. 2014. Talkabout: Small-group discussions in massive global classes. *ACM Learning@Scale Work in Progress (2014)*.

Justin Cheng, Chinmay Kulkarni. 2013. Tools for Predicting Drop-off in Large Online Classes. Scott Klemmer., *Adjunct Proceedings of CHI: ACM Conference on Human Factors in Computing Systems (CHI 2013)*.

Chinmay Kulkarni, Scott Klemmer. 2011. Automatically adapting web pages to heterogeneous devices. *Adjunct Proceedings of CHI: ACM Conference on Human Factors in Computing Systems (2011)*.

Chinmay Kulkarni, Santosh Raju, and Raghavendra Udupa. 2010. Memento: unifying content and context to aid webpage re-visitation. *Adjunct proceedings of UIST: ACM symposium on User interface software and technology, 2010*.

Chinmay Kulkarni, Osman Unsal, Adrian Cristal, Eduard Ayguade, Mateo Valero. 2009. Turbocharging Boosted Transactions: Or How I Learnt to Stop Worrying and Love Longer Transactions. *Proceedings of the PPOPP: ACM symposium on Principles and Practice of Parallel Programming 2009*.

**SELECTED
INVITED
TALKS**

Harvard University Oct 2015
Structuring Peer Interactions for Massive Scale Learning

Discussion Affordances for Natural Collaborative Exchange Talk Series
Designing with Diversity: Global conversations to enrich massive education Sept 2015.

Coursera, Inc. *Fast feedback in a global classroom* Jun 2014

Google, Inc. *Using Google Hangouts for Small Discussions in Massive Online Classes* May 2014

Berkeley Institute of Design, UC Berkeley *Learning better, and Creating Better Learners in MOOCs* Apr 2014

Facebook, Inc. *Massively Social Online Education: Peers and Networks in Online Courses* Dec 2013

EDUCAUSE ELI Focus Seminar *Lessons From Peer Assessment In MOOCs* Nov 2013

**RESEARCH
POSITIONS**

GOOGLE, INC. Mountain View, CA
Research Intern Summer 2011
Mentored by Ed Chi. As news reading has become increasingly social, I investigated how different types of annotations affect people's selection of news articles. I conducted crowdsourcing experiments that showed that while strangers' opinions have no persuasive effects on reading behavior, unknown branded companies still have per-

suasive effects. What works best are annotations by friends, which both help users decide what to read, and provide social context that improves engagement. The resulting paper was nominated as a Google Influential paper for 2013, and was featured on the Google Research blog.

MICROSOFT RESEARCH INDIA

Bangalore, India

Research Developer

Oct 2009- Sep 2010

I was involved with two projects: an interactive storytelling platform (I led development and ran user experiments), and a search application platform for Bing. My work resulted in two patents on search extensibility and contextual search for refinding webpages, as well as multiple papers.

MICROSOFT RESEARCH

Redmond, WA

Research Intern

Summer 2009

Mentored by Danyel Fisher. As one of three undergraduates from India chosen through the Worldwide Intern Program, my internship focused on building skills for rapid prototyping. I designed and prototyped a system for progressively rendering large, interactive treemaps with tens of thousands of data items in a web-browser. I used these prototypes to conduct a web-based perception study that compared the efficiency of various treemap layouts.

BARCELONA SUPERCOMPUTING CENTER

Barcelona, Spain

Research Intern

Jan 2009 - May 2009

Intern

Summer 2008

Mentored by Professor Osman Unsal and Professor Adrian Cristal for my senior thesis. My thesis made three contributions: 1) I computed theoretical bounds on semi-opaque memory transactions. 2) I created a linear-time algorithm for detecting chains of waiting transactions and deadlocks (PPoPP 2009). 3) I co-designed a hardware transactional memory (HTM) system with approximately ideal-lazy HTM performance.

**TEACHING &
ADVISING**

Instructor, *Learning with Peers at Massive Scale*. Spring 2016. This seminar style course provides a deep dive into the nascent science of Learning at Scale, with an emphasis on peer-interactions that empower learning. This course was chosen as an elective in CMU's METALS program.

Teaching Assistant, *www.hci-class.org*. I was the head TA for the first two offerings of the world's first massive class on HCI (offered by Professor Scott Klemmer, my advisor). In all, I answered 600 questions about class concepts on the class forum. I also designed peer-assessed, open-ended assignments (and co-developed the world's first MOOC-scale peer-assessment platform).

Mentoring

Graduate students

- Adam Stankiewicz (PhD, CMU)
- Yasmine Kotturi (Masters in CS @UC San Diego)

Undergraduates

- Rohan Varma, Sarah-Marie Foley, CMU
- Ashley Reese Now at Google.
- Julie Fortuna Now at Apple.
- Julia Cambre Now at Coursera.

- **Kanit (Ham) Wongsuphasawat** Now a PhD student at the University of Washington, advised by Jeff Heer.

SERVICE

External

Demos chair, ACM Conference on Computer-Supported Cooperative Work & Social Computing, 2017

Program Committee, ACM Conference on Computer-Supported Cooperative Work & Social Computing, 2017

Program Committee, ACM Conference on Learning at Scale, 2016

Program Committee, ACM Conference on Learning at Scale, 2015

Reviewer @ CHI 2010-2016, TOCHI 2013-2015, CSCW¹ 2012-2015, UIST 2011, DIS 2011 and others

¹*Recognized for excellent reviewing.*

Student Volunteer: CSCW 2014, UIST 2012 (Chair), UIST 2011, IUI 2011

Departmental

HCII PhD admissions committee 2015

METALS admissions committee 2015

BHCI admissions committee 2015

**SELECTED
PRESS**

Stanford Report May 6, 2015
Stanford Researchers Use Diverse, Global Discussion Groups to Boost Online Learning Experience for Participants

Harvard Business Review April 23, 2014
“The Right Colors Make Data Easier to Read”

EdSurge June 24, 2015
“5 Essential Steps to Building Community for your Online Course”

Financial Times December 9, 2013
“Moocs: Can Free Classes Match an MBA?”