# Vineet Pandey, Ph.D.

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Broadly-trained **Human-computer interaction researcher** with expertise in **social computing systems** and experience in application areas of **digital health** and **citizen science**.

Currently leading a research group of 7 members (3 PhD, 1 MS, 3 BS students). We are developing new techniques and platforms for community-expert collaboration in science and medicine. Working with domain-experts, our research cuts across individual, social, and institutional levels, *e.g.* smartphone-based measures of human cognition; remote assessments for neurological disorder communities; and decision-making in clinical trials.

## EMPLOYMENT/ EXPERIENCE

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**2023-** **Assistant Professor**, Kahlert School of Computing, University of Utah, Salt Lake City, UT, USA

**2022-23** **Postdoctoral Associate**, Massachusetts Institute of Technology, Cambridge, MA, USA
Faculty Mentor: Arvind Satyanarayan, Ph.D.; Assistant Professor of Computer Science
Collaborator: Graham M. Jones, Ph.D.; Professor of Anthropology

**2019-22** **Postdoctoral Fellow**, Computer Science, Harvard University, Cambridge, MA, USA
Affiliate, Center for Research on Computation and Society
Faculty Mentor: Krzysztof Z. Gajos, Ph.D.; Professor of Computer Science

**2019-22** **Non-Employee Researcher**, Massachusetts General Hospital, Boston, MA, USA
Faculty Mentor: Anoopum Gupta, MD, PhD (Neurology, Harvard Medical School)

**2014** **Research Intern**, Cipherbase team, Microsoft Research, Redmond, WA, USA
Summer Mentor: Arvind Arasu, Ph.D.

**2011-13** **Member of Technical Staff**, Advanced Technology Group, NetApp, Bangalore, India
Systems research in data replication and high-availability - Product changes and patents

## EDUCATION

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**2019** **Ph.D. in Computer Science & Engineering**
University of California San Diego, La Jolla, CA
**School of Engineering Henry Booker Award for Exemplary Ethical Engineering**

**Thesis**: Citizen-led Work using Social Computing and Procedural Guidance
Advisor: Scott Klemmer, PhD, Professor, Cognitive Science & Computer Science and Engineering
Committee members: Don Norman, Jim Hollan, Rob Knight, Laurel Riek

**2011** **Bachelor of Engineering (Honors), Computer Science**
BITS Pilani, India

Thesis: Integer Representations towards Efficient Counting in the Bit Probe Model
Advisor: Srinivasa S. Rao (Seoul National University, South Korea)

## GRANTS

### Completed

**National Science Foundation**. CIRC: Planning-M: VeriLab: Planning For a Reproducible Future in Computer Science. Requested Amount: $250,000. PI: Robert Ricci.
**Co-PI(s): Vineet Pandey**, Jason Wiese. Submitted 09-08-2023.

**Digital Health Initiative Seed grant**, University of Utah. Improving Health outcomes with digital social platforms. Requested Amount: $74,665. **PI: Vineet Pandey**. Co-PI(s): Professor Max Coleman (Assistant professor, Sociology). **Due Feb 02-09-2024**.

## PUBLICATIONS AND PATENTS

### As Assistant Professor

1 An ecosystem of evidence · *ACM In Submission 2024*

2 A spectrum of stance: How non-expert communities communicate with institutional experts on digital platforms · Nastaran Jadidi, Vineet **Pandey** · *Digital Humanities Utah. 2024.* (Abstract, not a full paper)

### Selected First author

1 Galileo: Citizen-led Experimentation using a Social Computing System · *ACM CHI 2021* · **Vineet Pandey**, Tushar Koul, Chen Yang, Mad Price Ball, Bastian Greshake Tzovaras, Daniel McDonald, Rob Knight, Scott Klemmer.

2 At-home Use of a Computer-based Pointing Task Accurately and Reliably Estimates Motor Impairments · *ACM TACCESS 2023* · **Vineet Pandey**, Nergis C. Khan, Anoopum S Gupta, Krzysztof Z Gajos

3 Docent: Transforming Personal Intuitions to Scientific Hypotheses through Content Learning and Process Training · *ACM Learning@Scale 2018* · **Vineet Pandey**, Justine Debelius, Embriette Hyde, Tomasz Kosciolek, Rob Knight, Scott Klemmer

### Additional Published Research

4 Free-living motor activity monitoring in ataxia-telangiectasia · *2021 The Cerebellum (June, Issue#3)* · Nergis C. Khan, **Vineet Pandey**, Anoopum Gupta, Krzysztof Gajos

5 From novices to co-pilots: Fixing the limits on scientific knowledge production by accessing or building expertise · *LIMITS 2020* · **Vineet Pandey**, Anoopum Gupta, Krzysztof Gajos

6 American gut: an open platform for citizen science microbiome research · *American Society for Microbiology mSystems 2018* · Daniel Mcdonald, Rob Knight, **American Gut Consortium**

7 Gut Instinct: Creating Scientific Theories with Online Learners · *ACM CHI 2017* · **Vineet Pandey**, Amnon Amir, Justine Debelius, Embriette Hyde, Tomasz Kosciolek, Rob Knight, Scott Klemmer

8 Framing Feedback: Choosing Review Environment Features that Support High Quality Peer Assessment · *ACM CHI 2016* · Catherine Hicks, **Vineet Pandey**, Ailie Fraser, Scott Klemmer

9 An HCI View of Configuration Problems · *arXiv (NOT peer-reviewed)* · Tianyin Xu, **Vineet Pandey**, Scott Klemmer

10 Concerto: A High Concurrency Key-Value Store with Integrity · *ACM SIGMOD 2017* · Arvind Arasu, Ken Eguro, Raghav Kaushik, Donald Kossmann, Pingfan Meng, **Vineet Pandey**, Ravi R.

11 Integer Representations towards Efficient Counting in the Bit Probe Model · *Journal of Discrete Algorithms 2014, Theory and Applications of Models of Computation 2011* · Gerth S. Brodal, Mark Greve, **Vineet Pandey**, S. Srinivasa Rao.

## Short Papers (Includes Abstracts, Extended Abstracts, and Workshop papers)

12 At-home use of a computer-based tool for estimating motor impairment severity · *2021 Annual Health Data Science Symposium at Harvard (Smartphones, Wearables, and Health)* · **Vineet Pandey**, Jessey Ouillon, Krzysztof Z. Gajos, Anoopum S. Gupta

13 Using Active Digital Phenotyping to Quantify Function and Cognition in Amyotrophic Lateral Sclerosis (ALS) · *33rd International Symposium on ALS/MND* · Zoe Scheier, Alison P. Clark, Mackenzie Keegan, Kelley Erb, Evan Remington, Sheena Chew, Roland Brown, Jessey Ouillon, **Vineet Pandey**, Krzysztof Z. Gajos, Anoopum S. Gupta, Katherine M. Burke, James D. Berry

14 Beyond Data Tracking: A Proposal to Design Health Interfaces for Learning and Sharing · **Vineet Pandey** · *2021 ACM IUI Workshop: Healthy Interfaces (HEALTHI)*

15 Neurological assessments without clinical supervision for a rare disease · **Vineet Pandey**, Nergis C. Khan, Anoopum S. Gupta, Krzysztof Z. Gajos · *2020 AMIA Workgroup on Interactive Systems in Health (WISH)*

16 Improving Health Outcomes by Integrating Personal Knowledge, Community, and Data · **Vineet Pandey** · *2019 ACM CHI Workshop: Body As Starting Point*

17 Reconstruction Reduces Fixation on Surface Details of Explanations · Sam Lau, Tricia Ngoon, **Vineet Pandey**, Scott Klemmer · *2019 ACM Creativity and Cognition*

18 Gut Instinct: Creating Scientific Theories with Online Communities · **Vineet Pandey** · *2018 CSCW Doctoral Consortium*

19 **Transitioning the American Gut Project to the Microsetta Initiative** · Daniel McDonald, Alexander Aksenov, Alexey Melnik, Pieter Dorrestein, Larry Smarr, Rashmi Sinha, **Vineet Pandey**, Scott Klemmer, Rob Knight · *2018 American Society of Microbiology*

20 Integrating Citizen Science with Online Learning to Ask Better Questions · **Vineet Pandey**, Scott Klemmer, Amnon Amir, Justine Debelius, Embriette Hyde, Tomasz Kosciolek, Rob Knight · *HCOMP 2016*

21 Game-Theoretic Models Identify Useful Principles for Peer Collaboration in Online Learning Platforms · **Vineet Pandey**, Krishnendu Chatterjee · *2016 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*

22 Education Across Borders: Technology Supported Mentoring and Teambuilding · **Vineet Pandey** · *2016 ACM CHI Workshop: HCI Across Borders*

23 Connecting Stories and Pedagogy Increases Participant Engagement in Discussions · **Vineet Pandey**, Yasmine Kotturi, C. Kulkarni, M. Bernstein, S. Klemmer · *2015 ACM Learning@Scale*

## Patents

1 Controlling Verification of Key-Value Stores. Arvind Arasu, Ken Eguro, Raghav Kaushik, Donald Kossmann, Pingfan Meng, Vineet Pandey, Ravi R. (Microsoft Research). 2018.

2 Migrating data from legacy storage systems to object storage systems. Vineet Pandey, Chhavi Sharma, Ranjit Kumar, Kaladhar Voruganti, Parag Deshmukh (NetApp, Inc.). 2014.

**PRESENTATIONS**

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## Invited Talks

Verbal/Visual Evidence workshop, Language and Technology Lab, MIT. 2023.

American Society of Microbiology, San Francisco, CA, USA. 2019

Showcase for American Academy of Arts and Sciences. San Diego, CA, USA. 2019

Innovation Lab Workshop. Harvard Business School, MA, USA. 2018

## Conference and Workshop Talks

ACM Conference on Human Factors in Computing Systems (CHI). Virtual. 2021

Citizen Science Association, Raleigh, NC, USA. 2019

ACM Learning@Scale, London. 2018

ACM Conference on Human Factors in Computing Systems (CHI), Denver, CO, USA. 2017

ACM Conference On Computer- Supported Cooperative Work And Social Computing (CSCW) Doctoral Consortium, NYC. 2018

ACM Intelligent User Interfaces (IUI) workshop: Healthy Interfaces, Virtual. 2021

## Posters

AMIA Workgroup on Interactive Systems in Health (WISH). Virtual. 2020

ACM Conference On Computer- Supported Cooperative Work And Social Computing . New York City's Hudson River, NJ. 2018

AAAI Conference on Human Computation and Crowdsourcing (HCOMP). Austin, TX. 2016

ACM Conference On Computer- Supported Cooperative Work And Social Computing . San Francisco, CA. 2016.

Digestive Disease Week, Chicago, IL. 2017

Health Data Exploration. UC San Diego. 2017. **First Prize in Posters**

Research Expo. UC San Diego, CA. 2016, 2017, 2018.

## Group/Lunch Talks

IIT Delhi, Jan 2023

Mass General Hospital Ataxia Center Symposium. 2021

Stanford HCI. 2018

University of Chicago. 2018

MIT Teaching Systems Lab. 2018

Precision Medicine Initiative, Scripps Research Translational Institute, La Jolla, CA, USA. 2018.

South Asia Initiative, UC San Diego. 2018

## Research Outreach

San Diego Fermentation Festival, San Diego, CA. 2019

Citizen Science Expo, San Diego, CA. 2019

Queso Diego, Fermenter's Club (Beer and cheese communities). 2018

MyLymeData, San Ramone, CA. 2018

Nerd Nite, San Diego, CA. 2018

Maker Faire, San Diego, CA. 2017

**TEACHING & ADVISING EXPERIENCE**

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## Advising (as Assistant Professor)

**Ph.D.**

1 Nastaran Jadidi (2023-) Designing social platforms for community-expert collaboration in science

2 Janet Ikhile (2023-) Smartphone-based health assessments for neurological disorders

3 Mutaz Hennawi (2024-) TBD

**M.S.**

1 Sujit Kumar Kamaraj (Fall 2023-, Independent Study Project) Tools for assessing the effect of pollution on cognition

2 Naman Rastogi (Fall 2023, Independent Study Project) Informatics support for people with Type 1 diabetes

3 Darshan Shimpi (Fall 2023, Independent Research)

**B.S.**

1 Brennan Cook (2024-) Undergraduate thesis: Predicting March Madness with crowd intelligence

2 Kunal Kamtekar (2024-), via the Engineering Scholars Program

3 Logan Wood (2024-), via the Engineering Scholars Program

**High school**

1 Lavanya Mohnani (2024-) Detecting diabetic retinopathy

**Committee member**

1 Noelle Brown: Ethics in Computing; Advisor: Professor Eliane Wiese

2 Maxim Lisnic: Data-driven Misinformation; Advisors: Professors Marina Kogan and Alex Lex

## Teaching (as Assistant Professor)

Undergraduate Fall 2023: CS 3540 Designing Human-Centered Systems (N=107).
**New class; Course effectiveness = 4.55/6; Instructor effectiveness = 4.91/6**
(Co-taught with Professor Jason Wiese) Introduction to Human-computer interaction with conceptual basis in human cognition and tool design, multiple kinds of prototyping, and programming assignments.

Graduate Spring 2024: CS 6968 Designing Novel Computing Systems for Science & Medicine (N=20)
**New class; Course effectiveness = TBD/6; Instructor effectiveness = TBD/6**

## Teaching Assistant

Responsibilities included running sections; creating problem sets; curating course reading lists; mentoring students projects; delivering guest lectures; need finding; running user studies; building apps; running experiments.

- Research in Human-Computer Interaction Design. Graduate. 31 students
- Human-Computer Interaction Design. Undergraduate. 30 students
- Introduction to Design. Undergraduate. 42 students
- Undergraduate Machine Learning. Undergraduate. 70 students.

## Professional Assistant (Undergraduate)

Assisted faculty in class hour teaching; cleared course concepts to students, conducted quizzes

- Digital Electronics and Computer Organisation course at BITS Pilani

## Advisor

Thesis Advisor Committee member for Ph.D. student Center for Research and Interdisciplinarity, Université de Paris (UdP)

Auxiliary Supervisor for Undergraduate Thesis, Lodz University of Technology, Poland and Visting Student at Harvard University

Ph.D. mentor for one student, UCSD Cogntive Science

M.S.Mentor for one student, UCSD Computer Science

## Mentor

9 undergraduate students

Early Research Scholars Program. UC San Diego. 2018.

Dream Fellowship Program through Undocumented Student Services at UC San Diego. 2018.

STARS (Summer Training Academy for Research Success) program. UC San Diego. 2018

Alumni Research Talks. BITS Pilani. 2014-now

## AWARDS

### Selected Recognition

School of Engineering Exemplary Ethical Engineering. UC San Diego. 2019.

First Prize in Posters at Personal Health Data workshop. San Diego. 2018.

Honorable Mention in Innovation and Teamwork. NetApp CTO Awards. 2012.

Admission offered (one of 30 nationwide). Indian Statistical Institute. Kolkata. 2006.

National Talent Search Scholar. 2004.

## PROFESSIONAL SERVICE

### School-level Service

- Admissions committee, 2022-23 (Before joining Kahlert School of Computing)
- Admissions committee, 2023-24
- HCC: Area co-ordinator for scheduling teaching assignments (Spring 24- )
- HCC: Delivered the HCC area talk (Fall 23)

### University-wide Service

Office of Undergraduate Research. OUR Education Series: Undergraduate Research Mentor Panel. 02-06-2024.

Office of Undergraduate Research. Research Tour of the Lab. 03-13-2024.

### Committee Experience

Program Committee responsibilities include managing the peer-review process

ACM Conference on Human Factors in Computing Systems, CHI 2022

ACM Conference On Computer- Supported Cooperative Work And Social Computing, CSCW 2022

ACM SIGCAS Computing and Sustainable Societies, COMPASS 2022

ACM Conference on Human Factors in Computing Systems, CHI 2021

ACM Conference On Computer- Supported Cooperative Work And Social Computing, CSCW 2021

ACM Designing Interactive Systems, DIS 2021

ACM Creativity & Cognition, C&C 2021

LIMITS workshop at ICT4Sustainability 2021

ACM Conference on Human Factors in Computing Systems, CHI (Extended Abstracts) 2021

ACM Creativity & Cognition, C&C 2019

ACM Learning@Scale, L@S 2019

## Reviewer

### Grant

National Science Foundation. Office of Advanced Cyberinfrastructure Research Experiences for Undergraduates (NSFREU). 2023.

### Conference/Journal

Reviewer responsibilities include writing full reviews of papers

American Medical Informatics Association Annual Symposium, AMIA 2021

ACM SIGACCESS Conference on Computers and Accessibility, ASSETS 2021

ACM Conference on Human Factors in Computing Systems, CHI 2024

ACM Conference on Human Factors in Computing Systems, CHI 2020

ACM Conference On Computer- Supported Cooperative Work And Social Computing, CSCW 2020

Symposium of the Workgroup on Interactive Systems in Health, WISH 2020

ACM Designing Interactive Systems, DIS 2019

ACM Designing Interactive Systems - Extended Abstracts, DIS 2019

ACM Conference On Computer- Supported Cooperative Work And Social Computing, CSCW 2019, 2018

ACM Conference on Human Factors in Computing Systems, CHI 2018, 2017

## Educational Outreach

Speaker, Summer Summit by Student Initiated Access Programs and Services (SIAPS) at UC San Diego. 2017.

Reviewer, Early Research Scholars Program, UC San Diego. 2018.

Reviewer, Gandhi Scholarship Selection Committee. San Diego. 2016.

Organizer, Alumni Research Talks, BITS Pilani, India. 2011, 2012, 2013.

Participant, Workshop Uniting the Californias (WUC). 2014.