

Subigya Nepal

INCOMING POSTDOC FELLOW · COMPUTER SCIENCE

Dartmouth College, Hanover, NH 03755

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Research Interests

My research is rooted in the practical use of ubiquitous computing and applied machine learning to gain a deeper understanding of human behavior through passive sensing data. The goal is to harness these insights to enhance wellbeing, performance, and productivity. Spanning computational social science, social computing, and human-computer interaction, my work is relevant in both clinical settings, including aiding patients with serious mental illness, and non-clinical environments like college campuses and workplaces. I am driven by the potential of these technologies to unlock fundamental insights into human behavior. This understanding is pivotal in revealing key aspects of human wellbeing and performance, with the ultimate aim of positively influencing individual health and contributing to the broader fabric of societal wellbeing.

Education

Guarini School of Graduate and Advanced Studies, Dartmouth College

Hanover, NH, USA

PHD COMPUTER SCIENCE

2018 - 2024

- Specialization: Human-Computer Interaction (HCI)
- Research Interests: Mobile/Digital Health, Well-being, Applied Machine Learning, Passive Sensing, Affective Computing.
- Dissertation: *Toward Integrating Behavioral Sensing and Artificial Intelligence*
- Thesis Committee: Dr. Andrew T. Campbell (chair), Dr. Nicholas C. Jacobson, Dr. Sarah M. Preum, Dr. Mary P. Czerwinski

Deerwalk Institute of Technology (DWIT)

Kathmandu, Nepal

BS COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

2013 - 2017

Research Experience

HAI Postdoctoral Fellow, Stanford University

Palo Alto, CA

STANFORD INSTITUTE FOR HUMAN-CENTERED AI (HAI) [🔗](#)

Beginning Sept. 2024

MENTOR: DR. GABRIELLA HARARI [🔗](#)

PhD Student, Dartmouth College

Hanover, NH

ADVISOR: DR. ANDREW T. CAMPBELL [🔗](#)

Sept. 2018 - May 2024

- Developed apps for ubiquitous sensing devices, like mobile phones and wearables, enabling cross-device communication and in-the-wild participant tracking in mental health and wellbeing studies.
- Analyzed extensive longitudinal data with advanced machine learning and deep learning techniques to assess and predict human behavior, specifically focusing on mental health and wellbeing.
- Enhanced Android applications for research projects, ensuring seamless integration within existing codebases and maintaining functionality.
- Managed AWS servers, developing server-side scripts and web backends for efficient data handling and analysis.
- Designed comprehensive data visualization dashboards and conducted both quantitative and qualitative analyses, interpreting results to deliver actionable insights to stakeholders.
- Supervised students, offering academic and research guidance, and contributed to grant proposal drafting and revisions, supporting funding efforts.
- Participated in multidisciplinary, multi-university collaborative research, particularly with psychologists, psychiatrists, and brain scientists, to identify research challenges and provide technical solutions.
- Led the design, data collection, cleaning, feature engineering, and machine learning modeling for various NSF/NIH mobile sensing projects at Dartmouth College, including significant grants like NIMH 1R01MH123482 [🔗](#), and NIMH 5R61MH126094 [🔗](#)
- Published innovative research in top-ranked journals and conferences in Computer Science, including ACM IMWUT and CHI, contributing to the fields of mobile sensing, machine learning, and human behavioral modeling.
- Actively involved as a Teaching Assistant, supporting student learning in relevant courses, and regularly presented analytical findings at various academic forums and conferences.

Research Intern, Microsoft Research

Cambridge, MA

HUMAN UNDERSTANDING AND EMPATHY GROUP [↗](#)

June - Sept. 2023

MENTORS: DRS. JAVIER HERNANDEZ [↗](#), MARY CZERWINSKI [↗](#)

- Conducted research on the efficacy of Large Language Models (LLMs) in enhancing productivity and well-being among information workers.
- Executed two studies: an initial user study followed by a subsequent study involving participant interaction with chat agents.
- Investigated prompt engineering techniques and developed prototypes comparing a chat agent with a generic dashboard to aid information workers in better understanding their workplace behaviors.
- Engaged in an iterative design process for refining hypotheses and research objectives.
- Collaborated effectively with team members and interns, actively involving additional stakeholders in the research process.
- Presented research findings to key stakeholders and led the preparation of the manuscript [P4].

Research Intern, Microsoft Research

Redmond, WA

HUMAN UNDERSTANDING AND EMPATHY GROUP

June - Sept. 2022

MENTORS: DRS. JAVIER HERNANDEZ, MARY CZERWINSKI

- Spearheaded two key projects aimed at investigating well-being in the workplace.
- Project 1: Understanding the dynamics between workplace rhythms and employee well-being [C9].
- Project 2: Fundamental research on burnout among cybersecurity workers [C12].
- Managed the entire research pipeline, encompassing study design, ethics review, data collection, analysis, and presentation of results.
- Facilitated cross-team collaboration and maintained effective communication with a diverse range of stakeholders.
- Authored two primary manuscripts; one was published at CHI 2023 [C9], and the other at CSCW 2024 [C12].

Teaching Experience

Graduate Teaching Assistant, CS 1: Introduction to Programming & Computation

Spring 2023 Designed lab exercises, formulated exam questions, and graded assignments/exam for a class of over 100 students, while providing individualized mentorship to enhance their learning and proficiency in programming.

Dartmouth
College

Graduate Teaching Assistant, CS 074/174: Machine Learning & Statistical Data Analysis

Winter 2023 Graded assignments and projects for a class of over 80 students, provided guidance in key machine learning and data analysis concepts, and supported other undergraduate TAs.

CS Graduate Academic Fellow, First-Year Summer Enrichment Program (FYSEP)

Summer 2021 Assisted in a week-long orientation for 95 first-generation students at Dartmouth, introducing Python programming and problem-solving skills, and encouraging an interest in Computer Science.

Teaching Assistant, CS 65/165: Smartphone Programming

Spring 2019 & 20 Collaborated with the professor in administering an introductory smartphone programming course, supporting 30 students in mastering Java-based Android app development, and was commended for effectively aiding in both technical guidance and project collaboration.

Teaching Assistant, CS 55: Security and Privacy.

Fall 2018 Graded assignments and exams, additionally providing students with clear explanations and guidance to deepen their understanding of key concepts.

Teaching Assistant, Embedded System Programming & Digital Logic

2017-2018 Taught practical lab sessions, providing hands-on assistance and answering student inquiries to facilitate learning. Also graded assignments, prepared labs, organized supplies, and resources.

DWIT


Publications



 [Google Scholar](#) | [DBLP](#) | [ACM DL](#)

A Note on Publication Venues: My research primarily aligns with Human-Computer Interaction (HCI), where top-tier conferences are pivotal for disseminating findings. Key among these is the ACM CHI Conference, renowned for its prestige and comprehensive coverage of HCI research. The ACM CSCW Conference stands out for its focus on technologies impacting groups and organizations. Additionally, the ACM UbiComp Conference is a leading platform for research in ubiquitous and wearable computing, emphasizing human experiences and social implications. These conferences, known for their rigorous peer-review process, maintain a selective acceptance rate of approximately 15-25% annually.



REFEREED CONFERENCE PROCEEDINGS


- C16. **Subigya Nepal**, Arvind Pillai, William Campbell, Talie Massachi, Eunsol Soul Choi, Michael Heinz, Xuhai Xu, Joanna Kuc, Jeremy F Huckins, Jason Holden, Colin Depp, Nicholas Jacobson, Mary P Czerwinski, Eric Granholm, Andrew T Campbell. Contextual AI Journaling: Integrating LLM and Time Series Behavioral Sensing Technology to Promote Self-Reflection and Well-being using the MindScape App. *Proceedings of the CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI EA'24)*. Honolulu, Hawaii. 2024. [Acceptance Rate: 34%]
- C15. **Subigya Nepal**⁺, Arvind Pillai⁺, Weichen Wang, Tess Griffin, Amanda C Collins, Michael Heinz, Damien Lekkas, Shayan Mirjafari, Matthew Nemesure, George Price, Nicholas Jacobson, Andrew Campbell. MoodCapture: Depression Detection using In-the-Wild Smartphone Images. (⁺co-primary) *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI'24)*. Honolulu, Hawaii. 2024. [Acceptance Rate: 26.3%]  [Media Coverage](#)
- C14. **Subigya Nepal**, Wenjun Liu, Arvind Pillai, Weichen Wang, Vlado Vojdanovski, Jeremy F Huckins, Courtney Rogers, Meghan Meyer, Andrew Campbell. Capturing the College Experience: A Four-Year Mobile Sensing Study of Mental Health, Resilience and Behavior of College Students during the Pandemic. *Proceedings of ACM Interactive, Mobile, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'24)*. Melbourne. 2024.  [Media Coverage](#)
- C13. Arvind Pillai, **Subigya Nepal**, Weichen Wang, Matthew Nemesure, Michael Heinz, George Price, Damien Lekkas, Amanda C Collins, Tess Griffin, Benjamin Buck, Sarah Masud Preum, Trevor Cohen, Nicholas C Jacobson, Dror Ben-Zeev, Andrew Campbell. Investigating Generalizability of Speech-based Suicidal Ideation Detection Using Mobile Phones. *Proceedings of ACM Interactive, Mobile, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'24)*. Melbourne, Australia. 2024.
- C12. **Subigya Nepal**, Javier Hernandez, Robert Lewis, Ahad Chaudhry, Brian Houck, Eric Knudsen, Raul Rojas, Ben Tankus, Hemma Prafullchandra, Mary P Czerwinski. Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire. *Proceedings of the ACM on Human-Computer Interaction (PACM HCI), CSCW'24*. San José, Costa Rica. 2024.
- C11. Weichen Wang, Weizhe Xu, Ayesha Chander, **Subigya Nepal**, Benjamin Buck, Serguei Pakhomov, Trevor Cohen, Dror Ben-Zeev, Andrew Campbell. The Power of Speech in the Wild: Discriminative Power of Daily Voice Diaries in Understanding Auditory Verbal Hallucinations using Deep Learning. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'23)*. Cancún, MX. 2023. [Acceptance Rate: 24%]
- C10. Xuhai Xu, Xin Liu, Han Zhang, Weichen Wang, **Subigya Nepal**, Yasaman Sefidgar, Woosuk Seo, Kevin S Kuehn, Jeremy F Huckins, Margaret E Morris, Paula S Nurius, Eve A Riskin, Shwetak Patel, Tim Althoff, Andrew Campbell, Anind K Dey, Jennifer Mankoff. GLOBEM: Cross-Dataset Generalization of Longitudinal Human Behavior Modeling. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'23)*. Cancún, MX. 2023. [Acceptance Rate: 24%]  Distinguished Paper Award: Top 3%  [Media Coverage](#)
- C9. **Subigya Nepal**, Javier Hernandez, Judith Amores Fernandez, Mehrab Bin Morshed, Robert Lewis, Hemma Prafullchandra, Mary P Czerwinski. Workplace Rhythm Variability and Emotional Distress in Information Workers. *Proceedings of the CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI EA'23)*. Hamburg, Germany. 2023. [Acceptance Rate: 34%]
- C8. Arvind Pillai, **Subigya Nepal**, Andrew Campbell. Rare Life Event Detection via Mobile Sensing Using Multi-Task Learning. *Conference on Health, Inference, and Learning (CHIL'23)*. Boston, MA. 2023. [Acceptance Rate: 36%]
- C7. Weichen Wang, **Subigya Nepal**, Jeremy F Huckins, Lessley Hernandez, Vlado Vojdanovski, Dante Mack, Jane Plomp, Arvind Pillai, Mikio Obuchi, Alex daSilva, Eilis Murphy, Elin Hedlund, Courtney Rogers, Meghan Meyer, Andrew Campbell. First-Gen Lens: Assessing Mental Health of First-Generation Students across Their First Year at College Using Mobile Sensing. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'22)*. Cambridge, UK. 2022. [Acceptance Rate: 26%]
- C6. **Subigya Nepal**, Weichen Wang, Vlado Vojdanovski, Jeremy F Huckins, Alex daSilva, Meghan Meyer, Andrew Campbell. COVID student study: A year in the life of college students during the COVID-19 pandemic through the lens of mobile


phone sensing. *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI'22)*. New Orleans, LA. 2022. [Acceptance Rate: 12.5%] [ [Media Coverage](#)]

- C5. Weichen Wang, Jialing Wu, **Subigya Nepal**, Alex daSilva, Elin Hedlund, Eilis Murphy, Courtney Rogers, Jeremy F Huckins. On the Transition of Social Interaction from In-Person to Online: Predicting Changes in Social Media Usage of College Students during the COVID-19 Pandemic based on Pre-COVID-19 On-Campus Colocation. *Proceedings of the International Conference on Multimodal Interaction (ICMI'21)*. Montréal, QC. 2021. [Acceptance Rate: 39%]
- C4. **Subigya Nepal**, Shayan Mirjafari, Gonzalo J Martinez, Pino Audia, Aaron Striegel, Andrew T Campbell. Detecting Job Promotion in Information Workers Using Mobile Sensing. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'20)*. Virtual. 2020. [Acceptance Rate: 24%] [ [Media Coverage](#)]
- C3. Weichen Wang, Shayan Mirjafari, Gabriella Harari, Dror Ben-Zeev, Rachel Brian, Tanzeem Choudhury, Marta Hauser, John Kane, Kizito Masaba, **Subigya Nepal**, Akane Sano, Emily Scherer, Vincent Tseng, Rui Wang, Hongyi Wen, Jialing Wu, Andrew Campbell. Social Sensing: Assessing Social Functioning of Patients Living with Schizophrenia using Mobile Phone Sensing. *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI'20)*. Virtual. 2020. [Acceptance Rate: 24%]
- C2. Vedant Das Swain, Koustuv Saha, Hemang Rajvanshy, Anusha Sirigiri, Julie M Gregg, Suwen Lin, Gonzalo J Martinez, Stephen M Mattingly, Shayan Mirjafari, Raghu Mulukutla, **Subigya Nepal**, Kari Nies, Manikanta D Reddy, Pablo Robles-Granda, Andrew T Campbell, Nitesh V Chawla, Sidney D'Mello, Anind K Dey, Kaifeng Jiang, Qiang Liu, Gloria Mark, Edward Moskal, Aaron Striegel, Louis Tay, Gregory D Abowd, Munmun De Choudhury. A Multisensor Person-Centered Approach to Understand the Role of Daily Activities in Job Performance with Organizational Personas. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'19)*. London, UK. 2019. [Acceptance Rate: 20%]
- C1. Shayan Mirjafari, Kizito Masaba, Ted Grover, Weichen Wang, Pino Audia, Andrew T Campbell, Nitesh V Chawla, Vedant Das Swain, Munmun De Choudhury, Anind K Dey, Sidney K D'Mello, Ge Gao, Julie M Gregg, Krithika Jagannath, Kaifeng Jiang, Suwen Lin, Qiang Liu, Gloria Mark, Gonzalo J Martinez, Stephen M Mattingly, Edward Moskal, Raghu Mulukutla, **Subigya Nepal**, Kari Nies, Manikanta D Reddy, Pablo Robles-Granda, Koustuv Saha, Anusha Sirigiri, Aaron Striegel. Differentiating higher and lower job performers in the workplace using mobile sensing. *Proceedings of ACM Interactive, Wearable, and Ubiquitous Computing (IMWUT/UbiComp'19)*. London, UK. 2019. [Acceptance Rate: 20%] [ [Media Coverage](#)]



REFEREED JOURNAL & MAGAZINE PUBLICATIONS

- J9. Erin K Moran, Madelyn Shapiro, Adam J Culbreth, **Subigya Nepal**, Dror Ben-Zeev, Andrew Campbell, Deanna M Barch. Loneliness in the Daily Lives of People With Mood and Psychotic Disorders. *Schizophrenia Bulletin*. 2024. [Impact Factor: 8.1]
- J8. **Subigya Nepal**⁺, Arvind Pillai⁺, Emma M. Parrish, Jason Holden, Colin Depp, Andrew T. Campbell, Eric Granholm. Social Isolation and Serious Mental Illness: The Role of Context-Aware Mobile Interventions. (* co-primary) *Pervasive Computing Magazine*. 2024.
- J7. Matthew David Nemesure, Amanda C Collins, George Price, Tess Z Griffin, Arvind Pillai, **Subigya Nepal**, Michael V Heinz, Damien Lekkas, Andrew T Campbell, Nicholas C Jacobson. Depressive symptoms as a heterogeneous and constantly evolving dynamical system: Idiographic depressive symptom networks of rapid symptom changes among persons with major depressive disorder. *Journal of Psychopathology and Clinical Science*. 2023. [Impact Factor: 7.8]
- J6. Deanna M Barch, Adam J Culbreth, Dror Ben Zeev, Andrew Campbell, **Subigya Nepal**, Erin K Moran. Dissociation of Cognitive Effort-Based Decision Making and its Associations with Symptoms, Cognition, and Everyday Life Function Across Schizophrenia, Bipolar Disorder, and Depression. *Biological Psychiatry*. 2023. [Impact Factor: 13.38]
- J5. Shayan Mirjafari, Hessam Bagherinezhad, **Subigya Nepal**, Gonzalo J Martinez, Koustuv Saha, Mikio Obuchi, Pino G Audia, Nitesh V Chawla, Anind K Dey, Aaron Striegel, Andrew T Campbell. Predicting Job Performance Using Mobile Sensing. *IEEE Pervasive Computing (Pervasive Computing Magazine)*. 2021. [Impact Factor: 1.6]
- J4. Dror Ben-Zeev, Ayesha Chander, Justin Tauscher, Benjamin Buck, **Subigya Nepal**, Andrew Campbell, Guy Doron. A Smartphone Intervention for People With Serious Mental Illness: Fully Remote Randomized Controlled Trial of CORE. *Journal of Medical Internet Research (JMIR)*. 2021. [Impact Factor: 7.4] [ [Media Coverage](#)]
- J3. **Subigya Nepal**, Gonzalo J Martinez, Shayan Mirjafari, Stephen Mattingly, Vedant Das Swain, Aaron Striegel, Pino G Audia, Andrew T Campbell. Assessing the Impact of Commuting on Workplace Performance Using Mobile Sensing. *IEEE Pervasive Computing (Pervasive Computing Magazine)*. 2021. [Impact Factor: 1.6] [ [Media Coverage](#)]
- J2. Dante L Mack, Alex W DaSilva, Courtney Rogers, Elin Hedlund, Eilis I Murphy, Vlado Vojdanovski, Jane Plomp, Weichen Wang, **Subigya Nepal**, Paul E Holtzheimer, Dylan D Wagner, Nicholas C Jacobson, Meghan L Meyer, Andrew T Campbell, Jeremy F Huckins. Mental Health and Behavior of College Students During the COVID-19 Pandemic: Longitudi-

nal Mobile Smartphone and Ecological Momentary Assessment Study, Part II. *Journal of Medical Internet Research (JMIR)*. 2021. [Impact Factor: 7.4] [ [Media Coverage](#)]

- J1. Jeremy F Huckins, Alex W DaSilva, Weichen Wang, Elin Hedlund, Courtney Rogers, **Subigya Nepal**, Jialing Wu, Mikio Obuchi, Eilis I Murphy, Meghan L Meyer, Dylan D Wagner, Paul E Holtzheimer, Andrew T Campbell. Mental Health and Behavior of College Students During the Early Phases of the COVID-19 Pandemic: Longitudinal Smartphone and Ecological Momentary Assessment Study. *Journal of Medical Internet Research (JMIR)*. 2020. [Impact Factor: 7.4][ [Media Coverage](#)]

REFEREED WORKSHOP PAPERS & INVITED ARTICLES

- W4. Jenna Butler, Sonia Jaffe, Nancy Baym, Mary Czerwinski, Shamsi Iqbal, Kate Nowak, Sean Rintel, Abigail Sellen, Najeel G. Abdulhamid, Judith Amores, Reid Andersen, Kagonya Awori, Maxamed Axmed, Danah boyd, James Brand, Georg Buscher, Dean Carignan, Martin Chan, Adam Coleman, Scott Counts, Madeleine Daepf, Adam Fourney, Daniel G. Goldstein, Andy Gordon, Aaron L Halfaker, Javier Hernandez, Jake Hofman, Jenny Lay-Flurrie, Vera Liao, Siân Lindley, Sathish Manivannan, Charlton McIlwain, **Subigya Nepal**, ..., Jaime Teevan. Microsoft New Future of Work Report 2023 . *Microsoft Research Tech Report MSR-TR-2023-34*. 2023. [Invited Submission]
- W3. **Subigya Nepal**, Weichen Wang, Bishal Sharma, Prabesh Paudel. Current practices in mental health sensing. *XRDS: Crossroads*. 2021. [Invited Submission]
- W2. Gonzalo J Martinez, Stephen M Mattingly, Jessica Young, Louis Faust, Anind K Dey, Andrew T Campbell, Munmun De Choudhury, Shayan Mirjafari, **Subigya Nepal**, Pablo Robles-Granda, Koustuv Saha, Aaron D Striegel. Improved Sleep Detection Through the Fusion of Phone Agent and Wearable Data Streams. *Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices (WristSense)*, co-located with IEEE International Conference on Pervasive Computing and Communications (*PerCom'20*). Austin, TX. 2020. [ Best Paper Honorable Mention]
- W1. Gonzalo J Martinez, Stephen M Mattingly, Shayan Mirjafari, **Subigya Nepal**, Andrew T Campbell, Anind K Dey, Aaron D Striegel. On the Quality of Real-world Wearable Data in a Longitudinal Study of Information Workers. *Workshop on Sensing Systems and Applications Using Wrist Worn Smart Devices (WristSense)*, co-located with IEEE International Conference on Pervasive Computing and Communications (*PerCom'20*). Austin, TX. 2020.

PRE-PRINTS, UNDER REVIEW & IN-PREPARATION

- P6. **Subigya Nepal**, Arvind Pillai, William Campbell, Talie Massachi, Michael Heinz, Ashmita Kunwar, Eunsol Soul Choi, Xuhai "Orson" Xu, Joanna Kuc, Jeremy F Huckins, Jason Holden, Sarah M. Preum, Colin Depp, Nicholas Jacobson, Mary P. Czerwinski, Eric Granholm, Andrew Campbell. MindScape Study: Integrating LLM and Behavioral Sensing for Personalized AI-Driven Journaling Experiences. *Under review at UbiComp'24*. 2024.
- P5. **Subigya Nepal**, Arvind Pillai, Michael Heinz, Xuhai Xu, Erin Moran, Weichen Wang, Shayan Mirjafari, Mikio Obuchi, Tess Griffin, Robert Klein, Damien Lekkas, Matthew Nemesure, Benjamin Buck, Nicholas Jacobson, Dror Ben-Zeev, Deanna Barch, Andrew Campbell. Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning. *In-Preparation*. 2023.
- P4. **Subigya Nepal**, Javier Hernandez, Talie Massachi, Kael Rowan, Judith Amores, Jina Suh, Gonzalo Ramos, Brian Houck, Shamsi T Iqbal, Mary P Czerwinski. From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions. *Under revision at CSCW'24*. 2023. [ [Media Coverage](#)]
- P3. Amanda C Collins, Damien Lekkas, Matthew David Nemesure, Tess Z Griffin, George Price, Arvind Pillai, **Subigya Nepal**, Michael V Heinz, Andrew T Campbell, Nicholas C Jacobson. Semantic signals in self-reference: The detection and prediction of depressive symptoms from the daily diary entries of a sample with major depressive disorder. *Under review*. 2023.
- P2. Shayan Mirjafari, **Subigya Nepal**, Weichen Wang, Andrew T Campbell. Using Mobile Data and Deep Models to Assess Auditory Verbal Hallucinations. *arXiv*. 2023.
- P1. **Subigya Nepal**, Gonzalo J Martinez, Shayan Mirjafari, Koustuv Saha, Vedant Das Swain, Xuhai Xu, Pino G Audia, Munmun De Choudhury, Anind K Dey, Aaron Striegel, Andrew T Campbell. A Survey of Passive Sensing in the Workplace. *arXiv*. 2024.

Awards & Fellowships

2023	A8. Best Poster Award , Digital Health Summit, Center for Technology and Behavioral Health, Dartmouth College	\$ 1,000
2023	A7. Distinguished Paper Award , ACM UbiComp, Cancún, Mexico	
2023	A6. Neukom Outstanding Graduate Research Award , Neukom Institute for Computational Science, Dartmouth College	\$ 500
2023	A5. Guarini Travel Award , Guarini School of Graduate & Advanced Studies, Dartmouth College	\$ 1,000
2023	A4. Neukom Travel Grant , Neukom Institute for Computational Science, Dartmouth College	\$ 1,000
2020	A3. Best Paper Honorable Mention , IEEE Pervasive Computing Workshop	
2018	A2. Dartmouth Graduate Student Fellowship , Dartmouth College	
2013	A1. Largest Merit Based Scholarship in the Class of 2017 , DWIT, Nepal	

Other Professional Experience

Cofounder & CTO, TechLekh Services Pvt. Ltd.

Kathmandu, Nepal
Aug. 2015 - Aug. 2018

- Co-founded TechLekh, a rapidly growing technology media startup in Nepal, during undergraduate studies.
- Activities include tech media as well as software development services through a sister offshoot.
- Oversaw delivery of large-scale projects including edtech platforms, machine learning products, and web applications.
- Currently one of Nepal's leading tech media properties with a significant following.
- Managed diverse responsibilities such as: setting organizational goals, overseeing managerial tasks, spearheading product development for sister organization.

Publicly Available Datasets & Tools

College Experience Study Dataset [↗](#)

The most extensive longitudinal mobile sensing study to date, leveraging continuous passive and automatic sensing data from the smartphones of over 200 Dartmouth students across five years (2017 - 2022). It encompasses mobile sensing data, self-reported momentary assessments, longer form surveys and periodic brain-imaging data. Released with publication C14 in IMWUT/UbiComp'24.

Generalization of Longitudinal Behavior Modeling (GLOBEM) [↗](#)

A platform to accelerate cross-dataset generalization research in the longitudinal behavior modeling domain. Includes a multi-year longitudinal passive sensing dataset with 500 unique participants. Released with publication C10 in IMWUT/UbiComp'23.

Talks & Presentations

Contextual AI Journaling: Integrating LLM and Time Series Behavioral Sensing Technology to Promote Self-Reflection and Well-being using the MindScope App. ACM CHI EA'24. Honolulu, Hawaii. 2024.

MoodCapture: Depression Detection using In-the-Wild Smartphone Images. Digital Health Summit, Dartmouth College, NH. 2023.

The Power of Speech in the Wild: Discriminative Power of Daily Voice Diaries in Understanding Auditory Verbal Hallucinations using Deep Learning. ACM IMWUT/UbiComp'23. Cancún, MX. 2023.

From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions. Microsoft Research. 2023

Workplace Rhythm Variability and Emotional Distress in Information Workers. ACM CHI EA'23. Hamburg, Germany. 2023.

Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire. Microsoft Research. 2022

COVID student study: A year in the life of college students during the COVID-19 pandemic through the lens of mobile phone sensing. ACM CHI'22. New Orleans, LA. 2022.

COVID student study: A year in the life of college students during the COVID-19 pandemic through the lens of mobile phone sensing. Dartmouth Innovation and Technology Festival. Dartmouth College, NH. 2022

Differentiating higher and lower job performers in the workplace using mobile sensing. ACM IMWUT/UbiComp'19. London, UK. 2019.

Media Coverage

2024	From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions, <i>Highlighted as a notable publication on Microsoft Research Blog</i>	[P4]
	Study Tracks Shifts in Student Mental Health During College, <i>Dartmouth News</i>	[C14]
	Mobile app predicts depression by reading your expression, <i>Interview on The Ross Kaminsky Show (iHeartRadio)</i> <i>The Times</i> <i>Dartmouth News</i>	[C15]
2023	Technology fueled America's youth mental health crisis, but it can help end it, <i>Washington Post</i>	
	Digital Mental Health Research Wins Distinguished Paper Award, <i>Dartmouth CS News</i>	[C10]
2022	Pandemic exposed mental health divide among college students, study says, <i>Washington Post</i>	[C6]
2021	Smartphone intervention feasible for Severe Mental Illness, <i>HealthDay News</i> <i>Verywell Mind</i> <i>Psychiatric News</i>	[J4]
	Wearable tech confirms wear-and-tear of work commute, <i>Dartmouth News</i>	[J3]
	Rates of anxiety and depression among college students continue to soar, researchers say, <i>Washington Post</i> <i>Union Leader</i>	[J2]
	Using Wearable Sensors to Study Workplace Behavior, <i>Tuck News</i>	[C1, C4]
2020	Coronavirus has made already-stressed college students even more anxious & depressed, <i>Washington Post</i> <i>The GW Hatchet</i>	[J1]
2019	Researchers developed a sensing system to constantly track the performance of workers, <i>TechCrunch</i> <i>Washington Post</i> <i>Financial Times</i> <i>Boston Globe</i> <i>Bloomberg</i>	[C1]

Service, Outreach, Personal Development & Volunteering

VOLUNTEER

2021 - Date	Founding Board Member, Better Life Social Organization - USA Helped establish and continue to contribute to a Lebanon, New Hampshire-based 501(c)(3) nonprofit. Our mission focuses on empowering orphaned and impoverished children in Nepal, providing comprehensive access to food, housing, education, healthcare, and skill training.
2022	Founding Member, Dartmouth Nepali Students Association Played a key role in establishing the association, organizing cultural and social events to engage the campus community, and fostering connections among Nepali students and the broader Nepali population.

MENTORING

2018-2023	Wenjun Liu, Graduate Student, Dartmouth College Kamakshi Moparthi, Graduate Student, Dartmouth College Everett Rattray, Undergraduate Student, Dartmouth College Vlado Vojdanovski, Undergraduate Student, Dartmouth College Sam H. Morton, Undergraduate Student, Dartmouth College David Mena, Undergraduate Student, Dartmouth College	[P7] [C6, C7, J1, P7]
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ACADEMIC SERVICE

Peer Review

ACM CHI (2021, 2024*)

ACM IMWUT/UbiComp (2019, 2021-2024)

ACM CSCW (2021-2022*)

Scientific Reports (2021)

* **Special Recognition for Outstanding Reviews**

Student Volunteer, CHI 2024 at Honolulu, Hawaii

Technical Program Committee

FairComp 2024: Workshop on Fairness and Robustness in Machine Learning for Ubiquitous Computing 

PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)

Special Interest Group on Computer-Human Interaction (SIGCHI)

Miscellaneous

SKILLS AND INTERESTS

Human-Centered Study Design, Longitudinal Data Analysis, Machine Learning, Deep Learning, Digital Phenotyping, Mental Health, Human Computer Interaction (HCI), Wellbeing, Computational Social Science, Social Computing, Human-centered Machine Learning, Time Series, Statistical Modeling, Data Science, Large Language Models (LLMs), User Research, Workplace Productivity Research, Future of Work, Behavioral Science, Mixed-Methods Research, Interdisciplinary Collaboration

PROGRAMMING

Python, Java, JavaScript, Bash, Android, SQL, MongoDB, PHP

LANGUAGE

English, Hindi, Nepali (native)

References

Prof. Andrew T. Campbell

Albert Bradley 1915 Third Century Professor of Computer Science

Director, Emerging Technologies and Data Analytics Core Center for Technology and Behavioral Health

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