Subigya Nepal

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Education

2024 (Expected) | **PhD in COMPUTER SCIENCE**
Dartmouth College, NH, USA

- Grad-level coursework: Deep Learning, Artificial Intelligence, Machine Learning and Statistical Analysis, Applications of Data Science, Cognitive Computing, Concurrent Algorithms, Robot Design and Program
- Research Interests: Applied Machine Learning, Passive Sensing, Mobile/Digital Health and Well-being.
- Advisor: Dr. Andrew T. Campbell

2017 | **BACHELOR OF SCIENCE in COMPUTER SCIENCE**
Deerwalk Institute of Technology, Kathmandu, Nepal

Research Experience

Sep 2018 to Present | **DARTMOUTH COLLEGE, USA**
Graduate Research Assistant

- Developed mobile sensing apps for health and wellbeing studies, enabling advanced participant tracking and data collection using ubiquitous devices like smartphones and wearables.
- Analyzed complex, real-world data sets using machine learning and deep learning to predict human behavior, focusing on mental health and wellbeing.
- Enhanced and integrated Android applications for complex research projects, maintaining high functionality and compatibility with existing systems.
- Managed AWS server environments and developed efficient data processing backends, optimizing data handling and analysis.
- Collaborated with experts across disciplines, including psychologists and brain scientists, to address research challenges and innovate solutions in mobile sensing.
- Led system design and machine learning modeling for high-profile NSF/NIH projects, contributing to the advancement of mobile sensing research.
- Authored publications in prestigious journals and conferences like IMWUT and CHI, showcasing novel findings in mobile sensing and human behavior modeling.
- Acted as a Teaching Assistant and regularly presented research findings, demonstrating effective communication and teaching skills.

Core competencies: Mobile & Wearable Application Development, Human-Centered Study Design, Longitudinal Data Analysis, Machine Learning, Deep Learning, Digital Phenotyping, Mental Health, Human Computer Interaction (HCI)

Jun 2023 to Sep 2023 | **Microsoft Research, Cambridge, MA, USA**
Research Intern, Human Understanding and Empathy group

- Investigated the impact of Large Language Models (LLMs) on productivity and well-being in information workers, conducting comprehensive research and analysis.
- Led two key studies: an initial user study and a follow-up focusing on interactions with chat agents, gaining valuable insights into user behavior and preferences.
- Explored prompt engineering methods and developed prototypes, enhancing user interfaces for chat agents to improve understanding of workplace behavior among information workers.
- Applied an iterative design approach to refine research hypotheses and objectives, ensuring alignment with user needs and project goals.
- Presented findings to key stakeholders and took the lead in drafting and finalizing a research manuscript, showcasing effective communication and leadership skills.

Mentors: Drs. Javier Hernandez, Mary Czerwinski
Core competencies: LLMs, User Research, Workplace Productivity Research, Prompt Engineering, Manuscript Preparation

Jun 2022 to Sep 2022 | **Microsoft Research, Redmond, WA, USA**
Research Intern (Remote), Human Understanding and Empathy group

- Led two projects focused on understanding well-being in the workplace
- Conducted fundamental research on burnout among cybersecurity workers
- Managed entire research pipeline, incl. study design, ethics review, data collection, analysis and result presentation
- Fostered cross-team collaboration and effectively communicated with diverse stakeholders
- Prepared two manuscripts as primary author; one was published at CHI 2023 and another at CSCW 2024

Mentors: Drs. Javier Hernandez, Mary Czerwinski
Core competencies: Project Leadership and Management, Workplace Well-being Research, Data Analysis and Interpretation, Study Design and Execution, Ethics Review and Compliance, Cross-teams collaboration and Communication

Selected Publications (Full list: Google Scholar | DBLP | ACM DL)

2023

17. **[Accepted]** A Pillai, S Nepal et al., *Investigating Generalizability of Speech-based Suicidal Ideation Detection Using Mobile Phones*. ACM Ubicomp 2024.
16. **[Accepted]** S Nepal et al., *Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire*, ACM CSCW 2023.
15. Wang et al., *The Power of Speech in the Wild: Discriminative Power of Daily Voice Diaries in Understanding Auditory Verbal Hallucinations using Deep Learning*, ACM Ubicomp 2023.
14. Arvind Pillai, S Nepal et al., *Rare Life Event Detection via Mobile Sensing Using Multi-Task Learning*, CHIL 2023. Acceptance rate: 36%.
13. S Nepal et al., *Workplace Rhythm Variability and Emotional Distress in Information Workers*, ACM CHI 2023 Extended Abstracts. Acceptance rate:∼30%.

2022

12. **[Distinguished Paper Award]** X Xu, X Liu, H Zhang, W Wang, S Nepal et al., *GLOBEM: Cross-Dataset Generalization of Longitudinal Human Behavior Modeling*, ACM Ubicomp 2023.
11. W Wang, S Nepal et al., *First-Gen Lens: Assessing Mental Health of First-Generation Students across Their First Year at College Using Mobile Sensing*, ACM Ubicomp 2022.
10. **[Media Coverage]** S Nepal et al., *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 2022. Acceptance rate: 12.5%.

2021

9. **[Media Coverage]** D Ben-Zeev et al., *A Smartphone Intervention for People With Serious Mental Illness: Fully Remote Randomized Controlled Trial of CORE*, JMIR 2021. Impact factor: 5.43.
8. **[Media Coverage]** S Nepal, GJ Martinez, S Mirjafari et al., *Assessing the Impact of Commuting on Workplace Performance Using Mobile Sensing*, IEEE Pervasive Computing Magazine 2021. Impact factor: 3.175.
7. S Nepal et al., *Current practices in mental health sensing*, ACM XRDS Magazine 2021.

2020

6. S Nepal, S Mirjafari et al., *Detecting Job Promotion in Information Workers Using Mobile Sensing*, ACM UbiComp 2020. Acceptance rate: 20-25%.
5. W Wang, S Mirjafari, ..., S Nepal et al., *Social Sensing: Assessing Social Functioning of Patients Living with Schizophrenia using Mobile Phone Sensing*, ACM CHI 2020. Acceptance rate: 24.3%.
4. **[Best Paper Honorable Mention]** GJ Martinez, ..., S Mirjafari, S Nepal et al., *Improved Sleep Detection Through the Fusion of Phone Agent and Wearable Data Streams*, IEEE PerCom Workshop 2020.
3. **[Media Coverage]** JF Huckins et al., *Mental Health and Behavior of College Students During the Early Phases of the COVID-19 Pandemic: Longitudinal Smartphone and Ecological Momentary Assessment Study*, JMIR 2020. Impact factor: 5.43.

2019

2. VD Swain, ..., S Mirjafari, S Nepal et al., *A Multisensor Person-Centered Approach to Understand the Role of Daily Activities in Job Performance with Organizational Personas*, ACM Ubicomp 2019. Acceptance rate: 20-25%.
1. **[Media Coverage]** S Mirjafari et al., *Differentiating higher and lower job performers in the workplace using mobile sensing*, ACM Ubicomp 2019. Acceptance rate: 20-25%.

Papers in Preparation/Under Review

2023-2024

6. S Nepal et al., *From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions*, In-preparation.
5. S Nepal et al., *MoodCapture: Depression Detection using In-the-Wild Smartphone Images*, Under review.
4. S Nepal et al., *The Pandemic College Experience: A Four-Year Mobile Sensing Study of Mental Health, Resilience and Behavior of College Students*, Under review.
3. S Nepal et al., *Social Isolation and Serious Mental Illness: The Role of Context-Aware Mobile Interventions*, Under review.
2. S Nepal et al., *Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning*, In-preparation.
1. A Collins et al., *Semantic signals in self-reference: The detection and prediction of depressive symptoms from the daily diary entries of a sample with major depressive disorder*, Depression and Anxiety.

Other Professional Experience

Aug 2015 to Aug 2018

TECHLEKH SERVICES PVT. LTD., NEPAL

Co-Founder & CTO

- 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

Core competencies: Entrepreneurship and Startup Management, Strategic Planning and Goal Setting, Software Development & Engineering, Team Management and Collaboration, Project Leadership and Execution.

Academic Service, Outreach, Awards & Volunteering

Volunteer
- Founding Board Member, Better Life Social Organization USA
  —› A 501(c)(3) non-profit organization working for disadvantaged children mainly in Nepal
- Founding Member, Dartmouth Nepali Students Association
  —› Dartmouth student club for students of Nepali origin

Reviewer
- ACM UbiComp 2019, 2021, 2022, 2023 • ACM CHI 2021, 2024 • ACM CSCW 2021, 2022 • Scientific Reports 2021

Awards
- Special Recognition for Outstanding Review at CSCW 2023 and CHI 2024
- Best Poster Award at Dartmouth Digital Health Summit (2023), Dartmouth College, USA
- Distinguished Paper Award (2023), ACM Ubicomp, Cancún, Mexico
- Neukom Outstanding Graduate Research Award (2023), Dartmouth College, USA
- Guarini Travel Award (2023), Guarini School of Graduate and Advanced Studies, Dartmouth College, USA
- Neukom Travel Grant (2023), Neukom Institute for Computational Science, Dartmouth College, USA
- Best Paper Honorable Mention (2020), IEEE Pervasive Computing Workshop
- Dartmouth Fellowship (2018), Dartmouth College, USA
- Largest Merit Based Scholarship in the Class of 2017 (2013), Deerwalk Institute of Technology, Nepal

Memberships
- Association for Computing Machinery (ACM) • Special Interest Group on Computer–Human Interaction (SIGCHI)

Miscellaneous

Tech Skills
- Python • Java • JavaScript • Bash Script • Android • Git • Nginx • SQL • MongoDB • PyTorch • R • PHP • Flask • Laravel • Docker • HuggingFace • FastAI • Scikit-learn • AWS • Azure Cloud Storage • REST • Mlxtend

Media
- *Technology fueled America's youth mental health crisis, but it can help end it.* Washington Post, September 2023.
- *Pandemic exposed mental health divide among college students, study says.* Washington Post, May 2022.
- *Smartphone intervention feasible for Severe Mental Illness.* HealthDay, Nov 2021.
- *Wearable tech confirms wear-and-tear of work commute.* Dartmouth News, Nov 2021.
- *Rates of anxiety and depression among college students continue to soar, researchers say.* Washington Post, June 2021.
- *Coronavirus has made already-stressed college students even more anxious & depressed.* Washington Post, July 2020.
- *Researchers developed a sensing system to constantly track the performance of workers.* TechCrunch, June 2019.

Languages
- English (fluent) • Hindi (fluent) • Nepali (native)

References
- Available upon request