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

Professional Experience

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

- Developed apps for ubiquitous sensing devices (e.g., mobile phones, wearables) enabling cross-device communication and *in-the-wild* participant tracking.
- Analyzed large-scale, noisy, real-world longitudinal data to assess and predict human behavior using machine learning and deep learning techniques.
- Enhanced Android applications for research studies and ensured seamless integration with existing codebase.
- Managed AWS servers and developed server-side communication scripts and web backends for efficient data handling.
- Designed data visualization dashboards and conducted quantitative data analysis to evaluate and interpret collected data, effectively communicating results to stakeholders.

Core competencies: Mobile and Wearable Application Development, Human-Centered Study Design, Longitudinal Data Analysis, Machine Learning and Deep Learning, Cross-functional Communication, Manuscript Preparation.

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

- Conducted research around understanding the potential of Large Language Models (LLM) in assisting in productivity and well-being of information workers.
- Prepared and submitted manuscript to CHI 2024.

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

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 2023

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.

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.

Publications

2023

22. **[Accepted]** S Nepal et al., *Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire*, ACM CSCW 2023.
21. **[Accepted]** Nemesure et al., *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. Impact Factor: 7.8.
20. **[Accepted]** 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.
19. Arvind Pillai, S Nepal et al., *Rare Life Event Detection via Mobile Sensing Using Multi-Task Learning*, CHIL 2023. Acceptance rate: 36%.
18. Deanna M. Barch et al., *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.
17. S Nepal et al., *Workplace Rhythm Variability and Emotional Distress in Information Workers*, ACM CHI 2023 Extended Abstracts. Acceptance rate:∼30%.

2022

16. X Xu, X Liu, H Zhang, W Wang, S Nepal et al., *GLOBEM: Cross-Dataset Generalization of Longitudinal Human Behavior Modeling*, ACM Ubicomp 2023.
15. 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.
14. **[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

13. **[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.
12. S Mirjafari, H Bagherinezhad, S Nepal et al., *Predicting Job Performance Using Mobile Sensing*, IEEE Pervasive Computing Magazine 2021. Impact factor: 3.175.
11. **[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.
10. W Wang et al., *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*, ACM ICMI 2021. Acceptance rate: 30%.
9. S Nepal et al., *Current practices in mental health sensing*, ACM XRDS Magazine 2021.
8. **[Media Coverage]** DL Mack et al., *Mental Health and Behavior of College Students During the COVID-19 Pandemic: Longitudinal Mobile Smartphone and Ecological Momentary Assessment Study, Part II*, JMIR 2021. Impact factor: 5.43.

2020

7. S Nepal, S Mirjafari et al., *Detecting Job Promotion in Information Workers Using Mobile Sensing*, ACM UbiComp 2020. Acceptance rate: 20-25%.
6. 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%.
5. **[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.
4. GJ Martinez, SM Mattingly, S Mirjafari, S Nepal et al., *On the Quality of Real-world Wearable Data in a Longitudinal Study of Information Workers*, 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

9. S Nepal et al., *From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions*, ACM CHI 2024.
8. S Nepal et al., *MoodCapture: Depression Detection using In-the-Wild Smartphone Images*, ACM CHI 2024.
7. S Nepal et al., *The Pandemic College Experience: A Four-Year Mobile Sensing Study of Mental Health, Resilience and Behavior of College Students*, ACM Ubicomp 2023.
6. S Nepal et al., *Social Isolation and Serious Mental Illness: The Role of Context-Aware Mobile Interventions*, IEEE Pervasive Computing Magazine 2023 Special Issue on Population in Crisis.
5. S Nepal et al., *Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning*, ACM CHI 2024.
3. A Pillai, S Nepal et al., *Investigating Generalizability of Speech-based Suicidal Ideation Detection Using Mobile Phones*, ACM Ubicomp 2023.
2. A Pillai, S Nepal et al., *Detecting Suicidal Ideation in Individuals Experiencing Mental Health Symptoms Using Audio Diaries from Mobile Phones*.
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.

Miscellaneous

Technical 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

Teaching Assistantship

• CS 1: Introduction to Programming & Computation. Spring 2023.
• CS 074/174: Machine Learning & Statistical Data Analysis. Winter 2023.
• Computer Science Orientation for First Generation Students. Aug 2021.
• CS 65/165: Smartphone Programming. Spring 2019 & 2020.
• CS 55: Security and Privacy. Fall 2018.

Presentations

• *Differentiating higher and lower job performers in the workplace using mobile sensing.*
–› Presented at ACM UbiComp, London, United Kingdom. Sep 2019.
• *COVID Student Study: A Year in the Life of College Students during the COVID-19 Pandemic.*
–› Presented at ACM CHI, New Orleans, LA. April 2022.
• *Workplace Rhythm Variability and Emotional Distress in Information Workers.*
–› Presented at ACM CHI, Hamburg, Germany. April 2023.

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 • ACM CSCW 2021, 2022 • Scientific Reports 2021

Awards

• Neukom Outstanding Graduate Research Award (2023), Neukom Institute for Computational Science, 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
• 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)

Media

• *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