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

I primarily work with ubiquitous sensing devices such as mobile phones and wearables, developing apps that can connect to and communicate across different devices and technologies. The human-centered studies that I work on utilize such apps for tracking participants *in-the-wild* resulting in a large amount of noisy real-world longitudinal data. My research involves performing different analyses leveraging machine learning and deep learning techniques on such multi-modal data to mostly assess and predict human behavior, such as job performance and well-being. My responsibilities include the following:

- Develop and enhance Android applications for research studies, while ensuring seamless integration with existing codebase.
- Oversee the management of AWS servers, including the creation of bash/python scripts and web backends for server-side communication.
- Design and implement dashboards to visualize collected data, facilitating the monitoring of compliance and data flow.
- Extract features from gathered data, preparing it for further analysis and interpretation.
- Conduct quantitative data analysis using exploratory data analysis, machine learning, and deep learning methodologies to evaluate raw data and generated features.
- Effectively communicate study progress, findings, and insights to relevant stakeholders through regular meetings, presentations, and publications.

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

During my internship at Microsoft Research, I successfully led two projects focused on understanding well-being in the workplace. The first project involved utilizing an existing dataset to examine the relationship between regular workplace rhythms and employee well-being. Concurrently, I conducted fundamental research to understand burnout among cybersecurity workers. Throughout these projects, I assumed a leadership role and managed the entire research pipeline, which encompassed study design, ethics review, deployment and data collection, analysis, and results presentation. A significant aspect of my internship involved effective communication with diverse stakeholders and fostering cross-team collaboration. Key achievements from my internship include the preparation of two manuscripts as the primary author and receiving commendations from mentors and collaborators for my contributions to the projects.

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

TechLekh, a rapidly growing technology media startup based in Nepal, was co-founded during my undergraduate studies. Our operations initially focused on tech media, while a sister offshoot specialized in providing software development services. I successfully oversaw the delivery of large-scale projects, including educational technology platforms, machine learning products, and various web applications. Today, TechLekh has become one of Nepal's leading tech media properties, boasting a significant following within the country's technology landscape. In my role as Co-founder and CTO, I managed a diverse range of responsibilities, including setting organizational goals, overseeing managerial tasks, and spearheading product development for the 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

19. **[Accepted]** Arvind Pillai, S Nepal et al., *Rare Life Event Detection via Mobile Sensing Using Multi-Task Learning*, CHIL 2023. Acceptance rate: 36%.
18. **[Accepted]** 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. **[Accepted]** 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

5. S Nepal, Arvind Pillai 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.
4. S Nepal et al., *Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning*, ACM Ubicomp 2023.
3. S Nepal et al., *Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire*, ACM CSCW 2023.
2. Arvind Pillai, S Nepal et al., *Detecting Suicidal Ideation in Individuals Experiencing Mental Health Symptoms Using Audio Diaries from Mobile Phones*, ACM Ubicomp 2023.
1. Amanda 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 • ACM CHI 2021 • ACM CSCW 2021, 2022 • Scientific Reports 2021

Awards
• 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