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 Health
- 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 Android apps for studies and/or add features to existing code-base.
- Manage the AWS server and write bash/python scripts and web-backends for server side communication.
- Create dashboard for visualization of the collected data in order to track the compliance and data-flow.
- Generate features from the gathered data for further analysis down-the-line.
- Perform analysis on the raw data as well as generated features using different quantitiative analysis approaches such as exploratory data analysis, machine learning and deep learning.
- Communicate the progress of the studies as well as findings to all the stakeholders involved via regular meetings, publications etc.

Technology stack: Python, Java, Android, PyTorch, Scikit-learn, Mlxtend, Mongo, MySQL, JavaScript, Flask, Git, AWS.

Teaching Assistant

- Computer Science Orientation (FALL 2021)
- Smartphone Programming (Spring 2020 and 2019)
- Security and Privacy (FALL 2018)

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 had the opportunity to lead two efforts around understanding well-being at work. My first project leveraged existing dataset to identify how regularity in workplace rhythm is related to well-being. In addition, I also executed some fundamental research in trying to understand burnout in cybersecurity workers. I took a leadership role in conducting the entirety of the 'research pipeline' i.e., study design, ethics review, deployment & data collection, analysis, and presentation of the results. A large part of my internship also involved communicating with a diverse group of stakeholders and cross-teams collaboration. The outcomes of this internship include two manuscripts (as primary author) that are currently in preparation and positive praise and acknowledgment for the work from mentors and collaborators.

Mentors: Drs. Javier Hernandez, Mary Czerwinski
Technology stack: Python, R, Scikit-learn, Git, Azure Cloud Storage.

Aug 2015 to Aug 2018 | **TECHLEKH SERVICES PVT. LTD., NEPAL**
Co-Founder & CTO

TechLekh is a fast-growing technology media startup based in Nepal that I co-founded during my undergraduate studies. We started our operations as a tech media company along with a sister offshoot that specialized in software development services. I led the software development branch, which successfully delivered big projects including educational tech platforms, machine learning products and several web applications. The main startup, TechLekh, is currently one of the leading tech media properties of Nepal and has a large following in the technology scene there. My responsibilities as a Co-founder and CTO were diverse, from managerial, for instance, setting organizational goal to developing products such as while leading the sister organization.

Technology stack: PHP, Laravel, Scikit-learn, REST, Python, Flask, WordPress.

Publications

2023

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

7. 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.
6. S Nepal et al., *Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning*, ACM Ubicomp 2023.
5. S Nepal et al., *Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire*, ACM CSCW 2023.
4. Arvind Pillai, S Nepal et al., *Detecting Suicidal Ideation in Individuals Experiencing Mental Health Symptoms Using Audio Diaries from Mobile Phones*, ACM Ubicomp 2023.
3. Arvind Pillai, S Nepal et al., *Rare Life Event Detection via Mobile Sensing Using Multi-Task Learning*, CHIL 2023.
2. 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.
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
• Flask • Laravel • Docker • HuggingFace • FastAI • Scikit-learn • AWS

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

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)