Subigya Nepal

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Education

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

- 25+ Papers (9 first-authored), h-index: 12, citations: 1100+
- Grad-level coursework: Deep Learning, Artificial Intelligence, Machine Learning & Statistical Analysis, Applications of Data Science, Cognitive Computing, Concurrent Algorithms, Robot Design & Programming, Introduction to Human-Computer Interaction (HCI)
- Research Interests: Applied Machine Learning, AI, Passive Sensing, Mobile/Digital Health, Mental 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 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.
- 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.
- 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.

Core competencies: Application Development, Human-Centered Study Design, Longitudinal Data Analysis, Machine Learning, Deep Learning, Digital Phenotyping, Mental Health, Digital Health, HCI, Data Visualization, Quantitative and Qualitative Research Methods

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

- 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.

Mentors: Drs. Javier Hernandez, Mary Czerwinski
Core competencies: LLMs, User Studies, ChatGPT, Prompt Engineering, Chat Agents, Prototyping, User Experience (UX)

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

- Spearheaded two key projects aimed at investigating well-being in the workplace.
- Project 1: Understanding the dynamics between workplace rhythms and employee well-being.
- Project 2: Fundamental research on burnout among cybersecurity workers.
- 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, and the other at CSCW 2024.

Mentors: Drs. Javier Hernandez, Mary Czerwinski
Core competencies: Project Leadership and Management, Workplace Behaviors, Employee Wellbeing Research, Burnout Analysis, Study Design and Execution, Ethics Review and Compliance, Cross-teams collaboration and Communication

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

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

Accepted or Published

11. S Nepal, A Pillai et al., *Social Isolation and Serious Mental Illness: The Role of Context-Aware Mobile Interventions*, Accepted at **IEEE Pervasive Computing Magazine 2024**.
10. S Nepal et al., *Contextual AI Journaling: Integrating LLM and Time Series Behavioral Sensing Technology to Promote Self-Reflection and Well-being using the MindScape App*, **ACM CHI 2024**. Acceptance rate: 34%.
9. S Nepal, A Pillai et al., *MoodCapture: Depression Detection using In-the-Wild Smartphone Images* **ACM CHI 2024**. Acceptance rate: 26%.
8. S Nepal et al., *Capturing the College Experience: A Four-Year Mobile Sensing Study of Mental Health, Resilience and Behavior of College Students during the Pandemic*, **ACM UbiComp 2024**. **[In press]**
7. S Nepal et al., *Burnout in Cybersecurity Incident Responders: Exploring the Factors that Light the Fire*, **ACM CSCW 2024**. **[In press]**
6. S Nepal et al., *Workplace Rhythm Variability and Emotional Distress in Information Workers*, **ACM CHI 2023**. Acceptance rate: 34%.
5. 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%.
4. S Nepal et al., *Assessing the Impact of Commuting on Workplace Performance Using Mobile Sensing*, **IEEE Pervasive Computing Magazine 2021**. Impact factor: 3.175.
3. S Nepal et al., *Current practices in mental health sensing*, **ACM XRDS Magazine 2021**.
2. S Nepal et al., *Detecting Job Promotion in Information Workers Using Mobile Sensing*, **ACM UbiComp 2020**. Acceptance rate: 24%.
1. S Mirjafari et al., *Differentiating higher and lower job performers in the workplace using mobile sensing*, **ACM UbiComp 2019**. Acceptance rate: 20%.

In-prep or review

3. S Nepal et al., *Multi-Study Pooling and Adaptation to Boost Mental Health Diagnosis using Mobile Sensing and Deep Learning*, In-preparation for **Journal of Medical Internet Research, 2024**.
2. S Nepal et al., *From User Surveys to Telemetry-Driven Agents: Exploring the Potential of Personalized Productivity Solutions*, Under review at **ACM CSCW 2024**.
1. S Nepal et al., *A Survey of Passive Sensing in the Workplace*, **Under review at CHIWork 2024**.

Volunteering & Awards

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, 2021-2024 • ACM CHI 2021, 2024 • ACM CSCW 2021, 2022 • Scientific Reports 2021

Awards

- Special Recognition for Outstanding Review at CSCW 2023 and CHI 2024 (2x)
- 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

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

- *AI App That Can Use Facial Cues to Detect Depressions.* The Ross Kaminsky Show (iHeartRadio), March 2024.
- *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