Sayde L. King

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Education

Expected August 2024 — **PhD Candidate; Doctor of Philosophy, Computer Science and Engineering**
University of South Florida, Tampa, FL

May 2022 — **Master of Science, Computer Science**
University of South Florida, Tampa, FL

May 2019 — **Bachelor of Science, Computer Science**
Minor in International Studies
University of South Florida, Tampa, FL

Journal Articles

[1] **S. L. King** and T. Neal, "Applications of AI-Enabled Deception Detection Using Video, Audio, and Physiological Data : A Systematic Review". ACM Computing Surveys, 2023 (Under Review).

[2] T. Neal, A. Negro, F. Montagna, M. N. Teng, S. Thomas, **S. King**, and R. Khan, "Analysis of the Evolution of COVID-19 disease understanding through temporal knowledge graphs". Frontiers in Research Metrics and Analytics, 2023, 8:1204801.

[3] K. Kosyluk, J.T. Tran, **S. King**, K. Torres, and T. Neal, "Preliminary Effectiveness Study of the Cope Notes Digital Mental Health Program". Journal of Mental Health, 2023; 32:3, 625-633.

[4] **S. L. King**, J. Lebert, L. A. Karpisek, A. Phillips, T. Neal, and K. Kosyluk, "Characterizing User Experiences With an SMS Text Messaging-Based mHealth Intervention : Mixed Methods Study". JMIR Formative Research, 2022 May 3; 6(5):e35699.

In Conference Proceedings

[1] **S. L. King**, H. Abootalebi, K. Kosyluk, J. Woodward, and T. Neal, "Qualitative and Experimental Analysis of Mental Health Clinician Experiences with Client Deception," in Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24), Honolulu, HI, USA. (Under Review).

[2] **S. L. King**, N. Johnson, K. Kosyluk and T. Neal, "Therapist Perceptions of Automated Deception Detection in Mental Health Applications," in Degen, H., Ntoa, S. (eds) Artificial Intelligence in HCII. HCII 2023. Lecture Notes in Computer Science, vol 14050. Springer, Cham.

[3] W. Lozano, **S. L. King**, T. Neal, " Observations of Caregivers of Persons with Dementia : A Qualitative Study to Assess the Feasibility of Behavior Recognition Using AI for Supporting At-Home Care," in Gao, Q., Zhou, J. (eds) Human Aspects of IT for the Aged Population. HCII 2023. Lecture Notes in Computer Science, vol 14050 Springer, Cham.

[4] N. Loecher, **S. King**, J. Cabo, T. Neal and K. Kosyluk, "Assessing the Efficacy of a Self-Stigma Reduction Mental Health Program with Mobile Biometrics : Work-in-Progress," in Proceedings of the 2023 17th IEEE International Conference on Automatic Face and Gesture Recognition (FG), Waikoloa Beach, HI, USA, 2023, pp. 1-6.

[5] M. Ebraheem, **S. King**, T. Neal (2022). "Lip Movement as a WiFi-Enabled Behavioral Biometric : A Pilot Study". In : Stephanidis, C., Antona, M., Ntoa, S. (eds) HCI International 2022 Posters. HCII 2022. Communications in Computer and Information Science, vol 1583. Springer, Cham.

[6] **S. King** M. Ebraheem, K. Zanna and T. Neal, "Learning a Privacy-Preserving Global Feature Set for Mood Classification Using Smartphone Activity and Sensor Data," in 2020 15th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2020) (FG), Buenos Aires, AR, 2020 pp. 660-664.

Presentations and Posters

[1] **S. King** and T. Neal (2023). "An Exploratory Analysis of Automated Deception Detection for Mental Health Applications", Accepted Abstract at the 2023 17th IEEE Conference on Automatic Face and Gesture Recognition Doctoral Consortium, 2023.

[2] **S. King**, P. Dang, M. Ebraheem, T. Neal (2022). "Toward Emotion Recognition and Person Identification Using Lip Movement From Wireless Signals : A Preliminary Study", Accepted Poster at the USF Florida Alliances for Graduate Education and the Professoriate (FL-AGEP) Research Symposium.

[3] M. Ebraheem, **S. King**, T. Neal (2022). "Lip Movement as a WiFi-Enabled Behavioral Biometric : A Pilot Study". In : Stephanidis, C., Antona, M., Ntoa, S. (eds) HCI International 2022 Posters. HCII 2022. Communications in Computer and Information Science, vol 1583. Springer, Cham.

[4] M. Ebraheem, **S. King**, T. Neal, "Towards a Privacy-Preserving Emergency Detection System via Channel State Information", Accepted Poster at The 1st Annual Nelms Workshop on Women in IoT (WiT) : Leading Through Change Warren B. Nelms Institute for the Connected World, 2020.

Technical Strengths

Computer Languages	C/C++, Python, SQL
Software & Tools	TensorFlow, Keras, OpenFace, WEKA, CLIPS, WireShark, INFOR Lawson, Hadoop V1

Training

AI + X	Deep Learning Bootcamp
CITI Program	Responsible Conduct of Research for Engineers
CITI Program	Social and Behavioral Responsible Conduct of Research
CITI Program	Biomedical Investigators and Key Personnel
CITI Program	Social/Behavioral Investigators and Key Personnel
Qualitative Training	Interview and Data Analysis

Research and Teaching Experience

Present – Fall 2023 | Department of Computer Science and Engineering, University of South Florida , Tampa, FL
Graduate Teaching Assistant
- Assist in preparing instructional material, grading, and assisting students outside of course hours for approximately 70 graduate students in the Special Topics Course CIS 6930 - Security and Privacy in Machine Learning.

Summer 2023 – Summer 2023 | Cyber Identity and Behavior Research Lab, University of South Florida, Tampa, FL
Doctoral Researcher | Principal Investigator, Dr. Tempestt Neal
- Age-Aware User Authentication
  - Conducted multimodal data collection sessions capturing physiological, video, audio, mouse dynamics, keystroke, and touch data across various contexts aimed to inform age-aware continuous authentication on personal computing devices.
  - Informed future experimentation of age-aware continuous authentication with data analyses using state-of-the-art machine and deep learning techniques.

Summer 2022 – Summer 2022 | Massachusetts Institute of Technology Lincoln Laboratory, Lexington, MA
GEM Fellow Summer Research Program Intern
- Amplified performance of feature estimation methods on the musculoskeletal injury (MSKI) prediction project which leverages accelerometry to predict ground reaction force waveforms via LSTM model.
- Implemented asymmetry of existing features to determine anomalies in gait.
- Illustrated need for protocol changes to better model MSKIs in the laboratory setting.
- Developed future data collection opportunities with Marine Corps leadership while on fielding.

Fall 2021 – Summer 2021 | Pacific Northwest National Laboratory, Department of Energy, Richland, WA
PhD Intern
- Applied machine learning and deep learning techniques on mass spectrometry data to learn and predict underlying patterns between spectra, instruments, and energy.
- Surveyed literature regarding lidar sensors, 3D point clouds, and adversarial attacks.

Spring 2023 – Fall 2021

NSF S-STEM Florida IT Pathways to Success, University of South Florida , Tampa, FL

Graduate Assistant

- Recruited cohorts of undergraduates of junior standing who are academically talented in the disciplines of Computer Science, Information Technology, Cybersecurity, and Computer Engineering at USF, UCF, and FIU with financial need to receive scholarships to support their studies.
- Planned and designed events for Flit-Path and Flit-GAP scholars to prepare them for industry careers, graduate school, and research careers, or entrepreneurship.
- Offered mentorship and guidance to scholars, assisting with resume review, obtaining research and leadership opportunities, and academic success.

Fall 2022 – Fall 2020

Machine Learning Club, Patel High School , Tampa, FL

Mentor

- Developed lessons and curriculum highlighting core concepts of machine learning for grades 9-12.
- Established assessment tools to provide feedback to participating students and aid teaching partners at Patel High.

Present – Fall 2019

Cyber Identity and Behavior Research Lab, University of South Florida , Tampa, FL

Doctoral Researcher | Principal Investigator, Dr. Tempestt Neal

- AI-Enabled Deception Detection for Mental Health
  - Conduct a multimodal data collection study aimed to support the exploration of deception detection across video, audio, gaze, and physiological modalities and across topics.
  - Evaluate the current state of the art literature on the topics of AI-enabled deception detection, human-inspired deception detection, and deception in therapeutic settings.
  - Conduct a study aimed to better inform the prevalence of deception in therapeutic settings, the scope of the problem, the impact of deception on care received, and perceptions on AI-enabled deception detection in a therapeutic setting.
- Up To Me : Erasing the Stigma of Mental Illness on College Campuses
  - Lead a longitudinal data collection effort of behavioral smartphone sensing data and accompanying self-report mental well-being surveys.
  - Sense biometric behavioral data from participant smartphones for objectively evaluating student success outcomes.
  - Generate User Guide and explanation videos to facilitate the participant enrollment in the behavioral sensing component of the project.
  - Develop machine learning models to detect behaviors related to student success outcomes (i.e., poor sleep, sense of belonging, academic performance, mental health).
  - Design and effectively distribute recruitment materials to various colleges, departments, and offices 5-7 times a semester.

Spring 2022 – Fall 2019

Cyber Identity and Behavior Research Lab, University of South Florida , Tampa, FL

Doctoral Researcher | Principal Investigator, Dr. Tempestt Neal

- Early Detection of Disease Outbreaks using Self-Organizing Patterns - COVID-19
  - Served as a member of an interdisciplinary, private-public, study team for NSF-Funded RAPID Grant.
  - Created a user-friendly knowledge graph about diseases, treatments of the diseases, and comorbidities.
  - Assisted in the creation of survey materials and the dissemination of these materials.
- Ubiquitous Sensing for Mental Health Text Messaging Interventions
  - Engaged in interdisciplinary research with the Department of Mental Health Law and Policy faculty.
  - Performed qualitative interviews with users of mobile mental health intervention services to understand their experiences.
  - Analyzed user perceptions concerning the extraction of continuous sensing data for the purpose of improving mental health interventions.

Summer 2020 – Fall 2019

Department of Computer Science and Engineering, University of South Florida , Tampa, FL

Graduate Teaching Assistant

- Assisted in preparing instructional material, grading, and assisting students outside of course hours for approximately 75 undergraduate and graduate students in the following courses :
  - COP 4365 - Software Systems Development
  - CIS 4930/CIS 6930 - Biometric Authentication on Mobile Devices
  - COT 4210 - Automata Theory and Formal Languages

August 2018 – June 2018 | Research Experience for Undergraduates, Department of Computer Science and Engineering, University of South Florida , Tampa, FL

Student Volunteer | Principal Investigator, Dr. Miguel Labrador

- Participated in an NSF-funded research program focused on ubiquitous computing.
- Worked on a three-person team to develop an audio-based, indoor localization system.
- Performed data collection, collecting 25-minute audio files for 19 different areas in a building.
- Implemented classic audio processing techniques, feature extraction, and machine learning algorithms via WEKA.

Professional Service

Reviewer

- Auxiliary Reviewer
  - International Joint Conference on Biometrics (IJCB 2020 - 2022)
  - Workshop on Demographic Variation in the Performance of Biometric Systems at IEEE's Winter Conference on Applications of Computer Vision (WACV 2020)
  - IEEE Transactions on Biometrics, Behavior, and Identity Science (2019 - 2020)
  - Challenges and Opportunities for Privacy and Security (in conjunction with IEEE's Computer Vision and Pattern Recognition) (CV-COPS 2019)
  - IEEE International Conference on Biometrics : Theory, Applications, and Systems (BTAS 2019)
  - ACM Computing Surveys (2019)
- Full Reviewer
  - International Joint Conference on Biometrics (IJCB 2021-2023)

Conference/Workshop Committees

- Program Committee, First Workshop on Interdisciplinary Applications of Biometrics and Identity Science (INTERID 2023) at the IEEE Face and Gesture Conference, Waikoloa Beach, Hawaii
- Program Committee, Workshop on Applied Multimodal Affect Recognition (AMAR 2020 - 2022) at the IEEE International Conference on Pattern Recognition, Montreal, Quebec
- Program Committee, Special Session on Identity for Social Good at the IEEE International Joint Conference on Biometrics (IJCB 2020), Houston, TX

Invited Panelist/Speaker

- Presenter | CodeBreakHERs, July 2023
- Speaker | UCF 6th Annual Flit-Path/Flit-GAP/NG-WEP Symposium, April 2022
- Guest | Modern Figures Podcast - Big Brain Energy, April 2022
- Panelist | Flit-Path : Graduate School Showcase, November 2021
- Presenter | CodeBreakHERs, May 2021
- Panelist | National Society of Black Engineers : Women in STEM, October 2020
- Mentor | Women in Computer Science and Engineering : Peer Mentoring, Fall 2020-2022
- Speaker | Women in Computer Science and Engineering : Is Undergraduate Research Worth It?, September 2020
- Panelist | Tampa Bay STEM Transfer : Bridge to Baccalaureate Alliance, December 2019
- Panelist | Flit-Path Symposium : Obstacles and Opportunities for Internships, April 2019

Honors And Achievements

2023 - Present	McKnight Dissertation Fellow
2022 - Present	GEM Employer Fellow (sponsored by MIT Lincoln Laboratory)
April 2022	USF Ambassadors Apple Polishing Award Recipient
May 2021	FL-AGEP Scholar Research Bootcamp Attendee
April 2021	CRA-WP Grad Cohort for Women Workshop Attendee
October 2019	26th Annual Institute on Teaching and Mentoring Attendee
2019 - Present	Sloan Scholar, Alfred P. Sloan Foundation's Minority Ph.D. (MPHD) Program
2018 - 2019	NSF Flit-Path Cohort-B Scholarship Recipient
2018 - 2019	James and Michelle Austin Ambassador Scholarship Recipient
2017 - Present	Member of the University of South Florida's Premier Leadership Society, Order of the Golden Brahman
2014 - 2016	Florida Academic Scholar, Florida Bright Futures Scholarship

Work Experience

July 2018 – May 2018 | Bulls Engineering Youth Experience, University of South Florida , Tampa, FL
Mentor
- Taught robotics and engineering concepts to low and middle income middle school students of Hillsborough County.
- Lead various projects throughout the program and cultivated an environment of growth, humility, and empowerment.

August 2017 – May 2017 | RPI Consultants, Brandon, FL
Systems Analyst
- Completed and presented deliverables including custom program and workflow development, and report development.
- Researched and troubleshot in support of Senior Technical Consultants.
- Produced technical documentation including user guides and test scripts.

May 2017 – January 2017 | Abacode Cybersecurity Experts, University of South Florida , Tampa, FL
Cybersecurity Intern
- Created White Papers for the company that described technical cybersecurity topics in layperson terms for display on the company's website and distribution to clientele.
- Wrote press releases for upcoming events, breaking news in cybersecurity, and Abacode's milestones.

August 2015 – June 2015 | Northrop Grumman Corporation, Defense Manpower Data Center Seaside, CA
Technical Services : College Intern
- Collaborated to modify an administrative tool using relational databases on a two person team.
- Managed multiple assignments including technical write-ups and weekly presentations to clientele.

Affiliations and Leadership

Present – Fall 2021 | University of South Florida Sloan UCEM Scholars, Tampa, FL
VP of Professional Development, Student Leadership Committee
- Encourage and track Sloan Scholar completion of the Professional Development Certificate.
- Update and inform scholars of upcoming events across societies and departments relevant to professional development.
- Spearheaded a log of fellowships to encourage scholar application to additional opportunities.
- Host invited speaker series for scholars.

May 2019 – May 2016 | University of South Florida Ambassador, Tampa, FL
Member, Director of Organizational Advancement
- Participated in University and local events as a representative of the student body on behalf of the University President's Office, and the Alumni Association.
- Fostered relationships between the university's student body of 50,000+ and the university Alumni.
- Served on the executive board, planned formal Meet and Greets, coordinated and executed the selection process of new members, managed and oversaw Marketing, Communications, Academy, and Assistant Director chair positions.