

SMC eNewsletter Student Corner Column (September 2026 Issue)

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In the Student Corner Column, we feature interviews with Ph.D. students who are making significant contributions to the fields of computer science and technology. In this issue, we interview Ms. Aishwarya Fursule.



Aishwarya Fursule is a third-year Ph.D. student at Wichita State University, USA, and a researcher at the SoundMind NeuroVision Lab. Her research focuses on audio deepfake detection through multi-feature frameworks while addressing fairness challenges in AI-based security systems. She also collaborates with researchers at INRS (Montréal, Canada) and The University of Texas at Austin on the Interdisciplinary Foundations of Machine Learning (IFML) project. Passionate about trustworthy AI, she aims to develop solutions that are accurate, fair, and impactful. Outside the lab, she enjoys badminton, chess, and reading books, research articles, and technology blogs.

1. Can you tell us about your academic journey and how you arrived at your current research topic?

Aishwarya Fursule: My journey into AI research has been anything but conventional, and I believe that is one of my greatest strengths. I earned both my bachelor's and master's degrees in Mechanical Engineering and began my professional career as a Senior Manager at Tata Motors. During my time there, I was involved in solving complex engineering and operational challenges, many of which relied heavily on data-driven decision-making. This sparked my curiosity about how data and intelligent algorithms could be used not only to optimize processes but also to solve larger, more complex problems. To better understand this rapidly evolving field, I enrolled in a machine learning course on Coursera. What started as a desire to broaden my technical knowledge turned into a genuine passion. The more I explored artificial intelligence, the more fascinated I became by its ability to learn from data, uncover hidden patterns, and solve problems that traditional engineering approaches could not. I realized I wanted to move beyond applying technology and contribute to advancing it through research.

Currently in my doctoral studies, I initially worked on speech emotion recognition, where I became fascinated by the richness and complexity of speech signals. Around the same time, generative AI experienced tremendous growth, making highly realistic audio deepfakes widely accessible. This raised an important question for me: if creating convincing fake voices has become so easy, how can we ensure that society has equally powerful tools to detect them? That question shaped my current research. Today, I focus on developing robust audio deepfake detection systems using multi-feature learning approaches while studying fairness across different speech characteristics, particularly gender-related variations. My goal is to build AI systems that remain accurate, reliable, and equitable regardless of the speaker or underlying model.

2. What inspired you to pursue research in your chosen field? How do you see it impacting society and humanity?

Aishwarya Fursule: Like many people, I was initially fascinated by the remarkable capabilities of generative AI. However, my engineering background naturally led me to think beyond innovation and consider the unintended consequences that accompany every technological breakthrough. The rapid advancement of voice generation technologies has created tremendous opportunities, but it has also introduced serious challenges. Audio deepfakes can be exploited for financial fraud, identity theft, misinformation, social engineering, and manipulation of digital

evidence. As these technologies become more accessible, ensuring trust in digital communication becomes increasingly important. This realization inspired me to dedicate my research to audio deepfake detection. Beyond achieving high detection accuracy, I am particularly interested in ensuring fairness. Human voices naturally vary across gender, age, accents, and speaking styles, and AI security systems should perform consistently for everyone rather than favoring one group over another.

I believe trustworthy AI is fundamental to the future of digital society. My long-term vision is to contribute toward secure and accessible AI systems that help preserve trust across industries such as finance, healthcare, cybersecurity, media, and digital communications while ensuring that fairness remains a core design principle.

3. What motivated you to join the IEEE and the SMC Society?

Aishwarya Fursule: Even before beginning my Ph.D., I was well aware of IEEE and its global reputation as one of the world's leading professional organizations for advancing technology. I always viewed becoming an IEEE member as both an honor and a responsibility, a commitment to contributing to a community that drives innovation, promotes ethical research, and creates technologies that positively impact society. When I started my doctoral journey, my advisor and co-advisors introduced me to the IEEE Systems, Man, and Cybernetics (SMC) Society. As I learned more about the Society, I realized it aligned perfectly with both my research interests and long-term aspirations. The interdisciplinary nature of the SMC Society—bringing together artificial intelligence, human-centered systems, cybersecurity, and intelligent decision-making which creates an ideal environment for my research. My work lies at the intersection of AI, speech processing, and security, making Society a natural fit.

Beyond technical resources, I was drawn to the opportunity to collaborate with researchers from diverse backgrounds, attend leading conferences, stay informed about emerging technologies, and contribute to a global community dedicated to solving meaningful societal challenges. Being part of the IEEE SMC Society allows me to continuously learn, exchange ideas, and grow alongside researchers who are collectively shaping the future of intelligent systems and responsible AI.

4. How has being a member impacted your academic or professional journey?

Aishwarya Fursule: Being an IEEE and IEEE SMC member has broadened my perspective on both research and professional development. Access to high-quality journals, technical publications, webinars, and conference proceedings has helped me stay current with the latest advancements while strengthening the foundation of my own research. One of the greatest benefits of being part of IEEE is the opportunity to learn from some of the brightest minds in the field. Although I may not have personally met many of these researchers, their pioneering work, publications, and ideas have significantly influenced the way I approach my own research. Having access to their knowledge allows me to build upon existing work, identify new research directions, and continuously improve the quality and impact of my contributions.

More importantly, the Society has shown me the value of interdisciplinary collaboration and lifelong learning. Connecting with a global research community has reinforced my belief that meaningful innovation is built by learning from one another, sharing knowledge, and working together to solve complex challenges. These experiences continue to shape my research while helping me grow as both a researcher and a professional.

5. Where do you see yourself in the next 5–10 years?

Aishwarya Fursule: Over the next five to ten years, I hope to help narrow the gap between deepfake generation and deepfake detection. Today, generating highly convincing synthetic voices has become remarkably simple, while detecting them remains technically challenging. I want to contribute toward changing that balance.

As a researcher, I believe learning never stops. I want to continuously upskill myself, explore emerging technologies, and deepen my understanding of complex challenges so that I can identify their root causes rather than simply treating their symptoms. By solving fundamental problems, I hope to create solutions that have a meaningful and lasting impact on society. Beyond developing technologies, I aspire to contribute knowledge that empowers future generations of researchers and innovators. I hope my work inspires others to build responsible, trustworthy AI systems and encourages a culture of collaboration, curiosity, and continuous learning. Ultimately, I want my research to leave a legacy that not only advances technology but also helps create a safer, fairer, and more trustworthy digital future for everyone.

6. What advice would you give to other students considering joining IEEE or a specific society like SMC?

Aishwarya Fursule: Research is no longer an individual pursuit the greatest innovations come through collaboration. Joining a professional society like IEEE SMC provides opportunities to learn from experts, present your work, receive valuable feedback, and build meaningful professional relationships. My advice is to actively participate. Attend conferences, volunteer, network, and engage with the community. Stay curious and embrace lifelong learning. The knowledge you gain, the people you meet, and the impact you create will extend far beyond your individual research.