The TIGURS program offers a wide range of potential projects. In the Table of Contents below each project title, faculty member, and department is listed. A longer description can be found by clicking on the project title, which will link to a paragraph long description of the project. Students are encouraged to select projects from this list for their application form. In the form students will be able to indicate interest in multiple projects. For students who are interested in other potential fields not listed here for projects please contact the Office of Undergraduate Research and Creative Inquiry ourci@towson.edu. Students are encouraged to reach out to faculty on the email listed in the project description with any questions.

‹ [link]

Dr. Michael Duffy (Electronic Media & Film)

‹ [link]

Dr. Pallavi Guha (Mass Communication)

‹ [link]

Dr. Ryan King-White (Kinesiology)

‹ [link]

Dr. Jianfen Chen (English)

‹ [link]

Dr. Christian Koot (History)

‹ [link]

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Dr. Wassila Lalouani (Computer Science)

‹ [   ]

Dr. Akshita Maradapu Vera Venkata Sai (Computer Science)

‹ [   ]

Dr. Vera Smolyaninova (Physics)

‹ [   ]

I would like to work with a group of 4-5 students to engage in research on the application of design thinking to solve real-world problems. As a process of problem solving, Design Thinking has been applied across various disciplines to help engage students in developing creative and innovative solutions to open societal problems.

My research focuses on enhancing Diversity, Equity, and Inclusion (DEI) in teacher education through interactive simulations. A potential project for students involves working on DEI-based simulations that address real-world classroom situations. Students would assist in implementing these simulations, gather and analyze data, and contribute to developing teaching materials. This project aims to improve teacher preparedness in diverse educational settings, making a significant contribution to innovative, inclusive teaching practices.

I have worked with undergraduate students within the College of Education over the past several years as a mentor for both URCI undergraduate projects and COE undergraduate projects. My work has involved guiding students through the process of conducting a systematic literature review, considerations for general survey design, and deployment of mixed methods for use in program evaluation. Prior work included connecting with colleagues at other institutions who shared information on the deployment of research methods within educational research and program evaluation specific to the social sciences, and more specifically educational research. I have an ongoing project that specifically examines the used of person centered approaches to individualized educational programming and transition planning for youth with disabilities and their families. I will continue this work this summer, specifically developing a small evaluation of personnel around the state of Maryland who have participated in capacity building seminars to deploy specific person centered practices with as invo6)-8)7ionng fgyouth and-10y7n)-3(v)2( )-258u)-ng alects

My primary research focuses on sexual violence and social media as empowerment tools, and my secondary research focuses on gender and political journalism. I have two projects I am working on and could work with students on either: 1. Parental awareness of teenage girls of color on sexual harassment on social media platforms: This study will explore how parents of teenage girls of color use online communities and platforms to create awareness of online sexual harassment. Parents are increasingly finding it difficult to have a conversation about social media sexual harassment with teenagers due to a lack of resources. In early 2023, social media platforms such as Snapchat and TikTok shared infographics on privacy and security as resources for parents; however, there is limited awareness among parents. To collect data for this study, I will use a two-pronged approach, semi-structured interviews with parents of teenagers and analyzing videos and comments from YouTube Channels for parents on safety training, such as Cyber Fareedah. 2. Online news and information engagement of South Asian American female voters in the upcoming 2024 U.S. Presidential Elections: This study will explore how South Asian American female voters plan to engage with the news during the 2024 Presidential election news cycle. This project focuses on understudied but critical demography at the intersection of political journalism, the issues that matter to the community, how they see themselves being portrayed in the media, and where they seek information and engage online. To collect data for this study, I will use semi-structured interviews with South Asian American female voters.

I primarily conduct research using qualitative methodology (genealogy/history; ethnography; critical media literacy; observation; interview), and am currently focused on gaining a better understanding the cultural phenomenon that is competitive junior golf. This is a continuation of the work that I was doing last summer, and will contribute to a book on the topic. Essentially, student(s) will accompany me to junior golf events in the summer (1-2 day tournaments on weekdays and weekends) to provide further observations and assist in recruiting interview participants. Contact hours for this type of research are pretty intensive on

Interested in learning more about Towson University's history of diversity, student organizing and protest? Then consider joining the Unearthing TU's History Project. Student research assistants will work with and under the mentorship of a team consisting of the Assistant University Librarian for Special Collections and University Archives and the Chair of the Department of History. The Unearthing Towson's History Project is an interdisciplinary collaborative effort that centers students as researchers and interpreters and connects alumni and the wider community to the university. Projects will include recording interviews with alumni, conducting archival research into Towson University's history, and sharing a more diverse history with the Towson community.

Broadly speaking, I am interested in promoting equitable education practices for Black students, families, and communities. An upcoming project will be examining experiences of special education through the lens of Black college students who were previously identified as having an educational disability (k-12). In the spring, students within the research lab will be completing a literature review and examining existing research on the topic. During the summer students will continue ongoing research efforts within the existing research lab project. Student wills support in examining existing literature on the topic and begin considering methods for data collection. As this project is part of an existing research lab, if interested in the fall once classes resume data collection via focus groups and interviews can begin.

Are you interested in Black wellness and supporting survivors of trauma? I conduct research on the development of individual and community-level interventions to

Dictyostelium discoideum to see what genes in this host are affected by TcpC. This

only gain proficiency in data science skills but also cultivate hands-on experience in the field. Preferred candidates are those pursuing a double major in computer science and exercise sciences.

Authorship Verification with Large Language Models Introduction: Authorship verification, the process of determining whether a given text was written by a specific author, is a critical task with applications in forensic linguistics, cybersecurity, plagiarism detection, and beyond. Traditional authorship verification methods involving Nature Language Processing (NLP) have relied on linguistic and stylometric analyses to identify unique writing patterns associated with individual authors. While traditional methods (s)-(t)5(y)4(lo)-(9)18(s)-(6)17(7)33(W)4(h)-10(i)(7le)(9)]TJETQq0.0000092 0 612 9 .(W)

on a dataset specific to the authorship versification. Choosing the right pre-trained LLM involves a balance between model capabilities, computational resources, and task-specific requirements. Students will learn two or three LLMs including model architecture, model size, training objectives, and specific design features to decide which LLM is good for the authorship verification. Model architecture adjustment and update: Depending on the LLM architecture and verification performance, architecture adjustment and updates may be needed to match the specific requirements of the authorship verification task recursively. For instance, you might add a classification layer for identifying authors, and update the model's weights after fine-tuning. Students will learn how to fine-tune methods and other model layers. Perform evaluating experiments: Basic concepts related to machine learning evaluating experiments such as train-test dataset split, loss function, cross-validation, performance metrics, and optimization will be introduced to students. In this step students will learn how to design and implement evaluation experiments including model training, validation and hyperparameter tuning, and evaluating the trained model on a separate test dataset to assess its performance in authorship verification. Final report: This project will require a final report that records the project methodology. Summa

My research focuses on different aspects of Internet of Things (IoT(like Edge computing, digital twin networks and devising mechanisms that aid in promoting user privacy in these different IoT applications. The goal of the project I have is to introduce the concept of Internet of Things (IoT) to the students. IoT data is very valuable and can provide a lot of information about the users like the activity on their smart devices and reveal sensitive information with data analysis and machine learning. IoT data usually comprises of data obtained from different sensors present on these devices. For example, our phones are equipped with sensors like accelerometer, gyroscope, magnetometer, light and pressure sensors and GPS. Information obtained from these can be

samples/device fabrication techniques and optical, cryogenic, and magnetic materials characterization techniques using state of the art new instruments recently set up in the Science Complex.

My research is in the field of experimental materials physics with a focus on electronic materials that have many technological applications including sensor technologies, clean energy/ renewable energy applications and information storage. I have been involving undergraduate students in my research for many years, and I expect to have projects for undergraduate students in summer'24. The student projects will be linked to one or more of our ongoing research projects related to thin films and multi-layers of materials such as Strontium Titanate and Calcium Manganese Oxide. "Thin Films" are nanoscale forms of these materials that we fabricate in our laboratory using a technique called Pulsed Laser Deposition (PLD). We study the properties of these thin films employing analytical tools such as x-ray diffraction and electrical transport measurements. Using information from such studies coupled with several 'in-situ' analytical techniques available on the Pulsed Laser Deposition system, we optimize the deposition parameters to engineer material properties desirable for technological applications. Participation in these research projects does not require any specialized knowledge or prior laboratory experience. However, it is important that students have a strong motivation for research as well as interest and ability to do hands-on work in the laboratory. Students will be provided with learning resources and training in laboratory techniques. Teamwork is highly emphasized in my laboratory so willingness to work in collaboration with others is also required. Materials Physics is an interdisciplinary field that bridges several disciplines including physics, engineering, and chemistry. Research experience in my laboratory will help student gain several 'transferable' skills that are valued both in in industry and academic research in multiple disciplines.