COUNCIL ON UNDERGRADUATE RESEARCH

2023-2024 Elections
Mathematical, Computing, & Statistical Sciences Division: Councilor Slate

Position Purpose: The CUR Council is a multidisciplinary body providing advisory input to the Board, so they have a broader perspective when making resource investment decisions. The Council serves in a communication capacity, surfacing key items arising from the Divisions, bridging the insight of the Division to the work of CUR as a whole, and serving as one means of information and resource dissemination from the central organization to the Divisions and members. The CUR Council is a newly developed body of volunteer leaders for this election cycle.

Needed Qualifications:

- Strong communication skills
- Previously served as a Division Councilor is a plus, but not required
- Membership with CUR
- Can not be serving concurrently as a Division Representative

There are 2 individuals running.
You may vote for both candidates presented to be elected as councilors for this division.

Candidate information is presented on the following pages. Click on each candidate name below to be taken to their Information In the document.

Kumer Das, University of Louisiana at Lafayette

Mathematical, Computing, & Statistical Sciences Division Nominee

NOMINEE STATEMENTS

Describe your leadership experience both within CUR and extramural.

I was the Founding Director of the Office of Undergraduate Research and Creative Activities at Lamar University, Texas, till August 2019. I was also the founder of two conferences primarily designed for undergraduate researchers. In my current role, even though I oversee the overall research at the University of Louisiana at Lafayette, I pay special attention to undergraduate research activities at UL Lafayette. I have been a member of the Louisiana Council on Excellence in Undergraduate Research (LaCOEUR) since the beginning of my tenure here. I served on the search committee of the Director of our Advance Student Research office and played an important role in founding this office. I get involved in the day-to-day activities of LaCOEUR and the Advanced Student Research office by reviewing budgets, grant applications, award selections, etc. I am also involved with a group interested in hosting a state-wide annual undergraduate research conference in Louisiana. I serve as a campus representative for the NSF-funded LS-LAMP program. Moreover, I guide the University of Louisiana System, which has nine universities, on many research-related issues. I am also an American Council of Education Fellow and an APLU Council of Research Fellow. I regularly get involved with national research leaders and policymakers in these two roles. I am also elected Academic Co-Chair of the Workforce Committee at the National Institute for Innovation in Manufacturing Biopharmaceuticals. In this role, I foster collaboration and drive initiatives that promote research, workforce development, diversity, and skills enhancement within the biomanufacturing industry. I have served as a Mathematical, Computing, and Statistical Sciences Division Councilor since 2014. During my tenure as a Councilor, I served the Division as a treasurer. I also served CUR on several committees, such as the CUR Fellow Committee.

How will your skills help the Council successfully uphold its charge?

I serve the University of Louisiana at Lafayette (UL) as the Assistant Vice President for Research, Innovation, and Economic Development and Assistant Provost. Under the guidance and supervision of the Vice President for Research, Innovation, and Economic Development (VPR), I work with other units throughout UL to seek external funding for faculty research, creative activity, and institutional projects that support the education and service mission of the university. I oversee the day-to-day activities in the Office of Vice President for Research, Innovation, and Economic Development (OVPRIED). More specifically, I supervise the Office of Research and Sponsored Programs, the Office of Research Integrity, and the Office of Innovation Management, focusing on technology collaboration, innovation, and commercialization. I also supervise 25 research centers and institutes within the Research Park and across the main campus. During the past four years in this role, I have contributed significantly to reshaping the research culture at UL. The university was recognized as a Carnegie Research 1 institution in 2022. I played a significant role in this transition. I am leading initiatives at UL to achieve UL's short-term and long-term research strategic plans, which include the formation of a research development unit, the effective use of research data in creating metrics and measures to reflect the growth, and fostering increased business engagement, entrepreneurship, and economic development opportunities by leveraging business development and technology transfer. These issues will profoundly impact my institution's research and scholarship portfolio. After serving as an MCS Division Councilor for about 10 years, I think I am ready to serve CUR as a whole. My current UL role and experience working with national bodies such as the Association of Public Land-Grant Universities and the American Council of Education will help me support the CUR Board.

NOMINEE ABBREVIATED CV

An abbreviated CV highlighting the candidate's accomplishments with respect to undergraduate research is available on the next page.

BIOGRAPHICAL SKETCH

NAME: Das, Kumer

POSITION TITLE & INSTITUTION: Assistant VP for Research and Assistant Provost, University of Louisiana at Lafayette

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE	YEAR
Dhaka University	Dhaka, Dhaka	Statistics	BS	1996
Dhaka University	Dhaka, Dhaka	Statistics	MS	1998
Auburn University	Auburn, AL	Mathematics	PHD	2005

(b) APPOINTMENTS

2019 - present Assistant VP for Research and Assistant Provost, University of Louisiana at Lafayette, Lafayette, LA

2019- present **Executive Member of Louisiana Council on Excellence in Undergraduate Research**

2017 - 2019 Professor, Lamar University, Beaumont, TX

2013 - 2019 **Founding Director, Office of Undergraduate Research, Lamar University, TX**

2014- present **Councilor, Council on Undergraduate Research (MCS Division)**

2012 - 2019 Director, Addressing the Gulf Coast Region's Graduation Rate Crisis in Mathematics and Computer Science, Beaumont, TX

2012 - 2013 Research Faculty Fellow, Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC

2012 - 2013 Visiting Associate Professor, University of North Carolina at Greensboro, NC

2011 - 2017 Associate Professor, Lamar University, Beaumont, TX

2005 - 2011 Assistant Professor, Lamar University, Beaumont, TX

(c) PRODUCTS

Publications and other accomplishments in undergraduate research

1. Das K. (2022), Chapter Author, Application of Mathematics to Risk and Insurance, Mathematics Research for the Beginning Student, Vol 2: Accessible Projects for Students after Calculus, Springer
2. Das K. (2013), “From Inquiry-Based Learning to Student Research in an Undergraduate Mathematics Program,” PRIMUS.
3. Das K, Daniel B, Andrei S, Osborne L. (2016), “ASCENT - A program designed to support STEM students through undergraduate research and mentoring.” ASEE Annual Conference and Exposition, Conference Proceedings. ASEE Annual Conference and Exposition, Conference Proceedings.
4. Founder of two conference primarily designed for undergraduate researchers: Texas STEM Conference-2013 and the Conference for Humanities, Arts, Social Sciences, Education and Business-2014.
5. Played a vital role in institutionalizing the Advance Student Research at UL Lafayette. Served on the search committee for the founding director of the Student Research program at UL.

Key Referred Publications with Undergraduate Students (* indicates undergraduate collaborator)

1. Kenney, A*., Solomon, D*. and Das, K. (2022) "Sparse regression with clustered predictors", Journal of Statistical Research, 56(1), pp. 37-53.
2. Dey A, Edwards A*, Das K. (2020) "Determinants of High Crude Oil Price: A Nonstationary Extreme Value Approach", Journal of Statistical Theory and Practice. 14(4)
3. Lee J*, Ciccarello S*, Acharjee M, Das K. (2017) Dimension reduction of gene expression data. Journal of Statistical Theory and Practice. 26; 12(2):450-461.
4. Edwards*, A and Das, K. (2016), "Using the statistical approach to model natural disasters", American Journal of Undergraduate Research, 13(2), 87-104.
5. Boling*, C. and Das, K. (2015), "Reducing dimensionality of text documents using latent semantic analysis", International Journal of Computer Applications, 112(5), 9-12
6. Duplan*, N., Hall*, C., Nguyen*, J., Willis*, C. and Das, K. (2011), "The Mathematical Approach to Evaluating the Elasticity of a Bonus-Malus System", The Pi Mu Epsilon Journal, 13(5), 269-276.

(d) FUNDED PROGRAMS INVOLVING UNDERGRADUATE RESEARCH

1. PI of NSF ExLENT program (Award Amount:$1M) Project ASSET: AddreSSing the TalEnt and DiversiTy Gap in Biotechnology Workforce. Eighteen black male undergraduate students will be conducting research and participating in internship.
2. PI of an NSF S-STEM funded program (Award ID: 1154606, Award Amount: $600K) known as ASCENT-Addressing the Gulf Coast Region's Graduation Rate Crisis in Math and Computer Science, 2013-209. Proof of Scholarly Activities: First 4 cohorts of ASCENT scholars made 55 presentations and published 4 articles. Broader Impact: Because of this program's extreme involvement in research LU established the Office of Undergraduate Research under the leadership of the PI. He became the Founding Director of the Office of Undergraduate Research.
3. PI of a Center for Undergraduate Research in Mathematics Program (CURM) funded by NSF and Brigham Young University to establish undergraduate research groups during academic year. Proof of Scholarly Activities: Participating students presented their findings in 7 conferences and a manuscript has been published in the Pi Mu Epsilon journal. Broader Impact: PI has shared his CURM experience in an article published in PRIMUS.
4. PI of an NSF REU funded program (2018-2020, Award Amount: $300K) - Eight students conducted research under faculty supervision in each summer from 2018 till 2020. He oversaw the entire program and supervised students. Proof of Scholarly Activities: First 2 cohorts of REU students have made 25 presentations and published 3 articles.
5. PI of a National Research Experience for Undergraduates Programs (NREUP), 2016 - funded by Mathematical Association of America and NSF to provide mathematical experiences for underrepresented groups (3 female and 2 cc students) through summer research.
6. PI of a REU, 2016 - funded by the American Statistical Association and NSF (Award ID: 1560332). The goal of this grant is to establish new REU Sites in topics related to Statistics and Data Science. Proof of Scholarly Activities: Participants presented research in 4 different conferences including the REU Symposium hosted by CUR and NSF. Broader Impact: REU participants and PI has published their findings in a peer reviewed journal.

Vinodh Kumar Chellamuthu, Utah Tech University

Mathematical, Computing, & Statistical Sciences Division Nominee

NOMINEE STATEMENTS

Describe your leadership experience both within CUR and extramural.

As a CUR Councilor in the Mathematical, Computing, and Statistical Sciences Division, I've significantly contributed as both a financial committee member and the MCS Awards Committee chair. My responsibilities include attending Annual Business Meetings, participating in quarterly MCS Councilor meetings, and overseeing mentor award selections. My leadership roles extend beyond CUR, serving as Program Coordinator for the Undergraduate Research SIGMAA of the Mathematical Association of America (MAA) and as Vice-Chair of Programs for BIG SIGMAA. Additionally, I've coordinated AMATYC's student research league and chaired the MAA Intermountain Section. At Utah Tech University (UTU), as Acting Director of Research, I've played a crucial role in increasing student presentations at external conferences by 150%, formulating research policies for externally funded programs, and managing over $150,000 in internal faculty research mini-grants. Furthermore, I've been involved in securing over 1.2 million dollars in external funding. My commitment to undergraduate research is evident from mentoring over 50 students, resulting in over 115 student presentations, including several poster prize winners and participants in the prestigious Posters on the Hill event. To support student research endeavors, I've obtained funding from various sources like CURM, PICMath, NREUP, and the NSF-funded S-STEM program, along with MAA's Tensor Women & Mathematics. I've also been instrumental in establishing and leading STEM outreach programs at UTU, including the DTSP program, Red Rock Math Circle, and the MAGIC summer program. These initiatives have earned me the Early Career Faculty Mentoring Award from CUR, reflecting my dedication to nurturing future scientists through undergraduate research. My leadership philosophy centers around strategic planning, developing others, and practicing cultural competency, with a strong focus on inclusivity and representation. This approach has been key to my success in leading teams, designing educational programs, and mentoring students, driving my ongoing efforts to advance mathematics and science education.

How will your skills help the Council successfully uphold its charge?

My diverse skill set is well-suited for the Council's mandate to offer advisory input, bridge communication gaps, and guide Division management. As a CUR Councilor and MCS Awards Committee chair, my experience in diverse academic disciplines provides broad perspectives essential for the Board. My participation in Annual Business Meetings and MCS Councilor meetings has refined my ability to synthesize various viewpoints, crucial for delivering well-rounded advisory input on resource investments. My role as Program Coordinator for the Undergraduate Research SIGMAA of the MAA and Vice-Chair of Programs for BIG SIGMAA has equipped me with extensive experience in bridging communication across various sectors. This experience will be invaluable in surfacing key issues from the Divisions and effectively communicating the Division's insights to CUR at large. My leadership in coordinating the student research league for AMATYC and chairing the MAA Intermountain Section has further developed my ability to facilitate effective information dissemination from the central organization to the Divisions and members. As the acting Director of Research at UTU, where I managed significant funding and advocated for research policies, I have demonstrated strong capabilities in strategic planning and resource management. This background is foundational for making informed recommendations on Division creation, merging, and sunsetting. My interdisciplinary research experience and teaching background in STEM significantly bolster the Council's mission. Skilled in effective communication and collaboration, I am adept at bridging insights across Divisions and with the central organization. My approach aligns with the Council's objective to enhance decision-making through a broad, multidisciplinary lens. In summary, my combination of multidisciplinary understanding, communication skills, and strategic planning abilities positions me to effectively uphold the Council's charge. I am committed to leveraging these skills to ensure the Council successfully advises the Board, bridges communication between the Divisions and CUR, and provides strategic recommendations on Division management.

NOMINEE ABBREVIATED CV

An abbreviated CV highlighting the candidate's accomplishments with respect to undergraduate research is available on the next page.

Vinodh Kumar Chellamuthu ***Curriculum vitae***

CONTACT INFORMATION

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Utah Tech University
225 South 700 East
St. George, Utah 84770

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Mobile - 413-687-5260
Vinodh.Chellamuthu@utahtech.edu

EDUCATION

Ph.D. Mathematics, August 2015, University of Louisiana, Lafayette, LA
M.S. Applied Mathematics, May 2010, Tulane University, New Orleans, LA

UNDERGRADUATE RESEARCH MENTORING

During my nine years at Utah Tech University, I have mentored over 50 undergraduate students on their individual research projects, which mostly involves the interface of mathematics and other disciplines. These projects have led to over 120 undergraduate student presentations in various international, national, state and regional conferences, and 6 publications in peer-reviewed journals.

PROFESSIONAL APPOINTMENTS

Associate Professor of Mathematics, Utah Tech University, July 2021 – present
Acting Director of Research, Utah Tech University, Aug. 2022 – present
Assistant Professor of Mathematics, Utah Tech University, July 2015 – June 2021
Interim Department Chair of Mathematics, Utah Tech University, Feb.– June 2017
Project Associate, Indian Institute of Technology, Madras, Aug. 2005 – April 2007

SELECTED GRANTS

- **Co-Principal Investigator**, UT Innovative Scholars Program for Interdisciplinary Research (INSPIRE), National Science Foundation, 2021-2026 (**$933,393**).
- **Principal Investigator**, 2021 National Research Experience for Undergraduates Program, NREUP 2021. National Science Foundation (**$29,500 subaward through Mathematical Association of America**).
- **Principal Investigator**, 2021-22 CURM Minigrant 2021. National Science Foundation (**$12000 subaward through CURM**).
- **Director**, (*Utah Tech University's PRIME: Performing Research Increases Mathematical Empowerment)*), Tensor SUMMA Grants, Mathematical Association of America (MAA). (**$11,760**)(May, 2022 - May 2024).
- **Recipient**, PIC Math, (*Preparation of Industrial Carreers in Mathematics*), NSF through Mathematical Association of America (MAA)(**$7000**)(Spring 2019, Spring 2020, Spring 2022).
- **Co-director**, DTSP (*Dixie Tensor Scholar Program*), Tensor Women and Mathematics Grants, Mathematical Association of America (MAA). (**$10000**)(May, 2019 -– May, 2022).

SELECTED REFEREED JOURNAL PUBLICATIONS - * INDICATES UNDERGRADUATE AUTHORS

- **V. Anderson***, **C. Bettis***, **S. Brown***, **J. Davis***, **N. Walker***, V.K. Chellamuthu, and A.S. Vatsala. "Superlinear convergence via mixed generalized quasilinearization method and generalized monotone method", *Involve, a Journal of Mathematics* **7:5** (2014), 699-712.
- **Schmidt, Gregory***; **Whipple, Benjamin***; Chellamuthu, Vinodh; and Xie, Xiaoxia. "A Dynamical System Model of Dengue Transmission for Rio de Janeiro, Brazil," *Spora: A Journal of Biomathematics:* **Vol. 9**, (2023) 1–11.

- **Craig Peterson***, Vinodh K. Chellamuthu, and Joseph Lovell, "Critical Commentary: Weighted Analytics – What Do the Numbers Suggest?", *Journal Of Emerging Sport Studies* , Volume III, (2020)
- **West, Noelle*** and Chellamuthu, Vinodh K. (2020) "Modeling the Effects of Passive Immunity in Birds for the Disease Dynamics of West Nile Virus," *Spora: A Journal of Biomathematics:* Vol. 6, 16–25.
- **Stiner, S.*** and Chellamuthu, V. (2020). An Agent-Based Model of West Nile Virus: Predicting the Impact of Public Health Agents and Vaccinations on Horses. *Curiosity: Interdisciplinary Journal of Research and Innovation*, 44–66.
- **Vasquez, C.***and Chellamuthu, V. (2021). House Price Prediction With Statistical Analysis in Support Vector Machine Learning for Regression Estimation. *Curiosity: Interdisciplinary Journal of Research and Innovation*, 1(2)

Selected Students Presentations at National Conference

- **Colton Smith**†, *Outstanding Poster Award* "*Assessing the Role of Temperature in Dengue Fever Outbreak Dynamics with Wolbachia Transinfection Control Methods.*" AMS-MAA Joint Mathematics Meeting, San Diego, CA, January 10-13, 2018.
- **Alexandar Mitchell**, *Dixie Awards 2018 - Undergraduate Researcher of the Year* "*An Agent Based Model of Hand, Foot, and Mouth Disease*" MAA Intermountain Sectional Meeting, Logan, UT, March 23-24, 2018.
- **Craig Peterson**, "*Statistical Analysis of Players .*" The Hockey Conference, Edmonton, CANADA, July 5-6, 2018.
- **Jake Skinner**$^{++}$, *Outstanding Poster Award* "*Wildfire: A Mathematical Model Analyzing the Effects of Fire Damage.*"AMS - MAA Joint Mathematics Meeting, Baltimore, MD. Jan. 16-19, 2019
- **Noelle West**$^{++}$, *Outstanding Poster Award* "*A Mathematical Model of West Nile Virus: The Effect of Interaction Between Humans, Mosquitoes, and Birds.*"AMS - MAA Joint Mathematics Meeting, Baltimore, MD. Jan. 16-19, 2019
- **Craig Peterson**$^{++}$, *Outstanding Poster Award* "*Forecasting Performance Through Analytics.*"AMS - MAA Joint Mathematics Meeting, Baltimore, MD. Jan. 16-19, 2019
- **Abel Reed**, "*Assessing the Role of Prescribed Painkillers and its Impact on Opioid Epidemic.*" AMS - MAA Joint Mathematics Meeting, Baltimore, MD. Jan. 16-19, 2019
- **Craig Peterson**, "*Forecasting Performance Through Analytics.*" MAA Intermountain Section Spring Meeting, Cedar City, UT, April 12-13, 2019.
- **Cesar Vasquez**$^{++}$, *Outstanding Poster Award* "*Rating Clientele Potential Using Statistical Models.*"AMS - MAA Joint Mathematics Meeting, Denver, CO. Jan. 15-19, 2020
- **Shandi Stiner**, "*An Agent-Based Model of West Nile Virus: Predicting the Impact of Vaccinations on Horses.*"AMS - MAA Joint Mathematics Meeting, Denver, CO. Jan. 15-19, 2020
- **Ammon Taylor**, "*A Mathematical Model to Control Mosquito Population through Wolbachia Transinfection.*"AMS - MAA Joint Mathematics Meeting, Denver, CO. Jan. 15-19, 2020
- **Noelle West**$^{++}$,*Outstanding Poster Award* "*A Mathematical Model of West Nile Virus: The effects of Passive Immunity in Birds and Vertical transmission in Mosquitoes.*" AMS - MAA Joint Mathematics Meeting, Denver, CO. Jan. 15-19, 2020

Selected Synergistic Activities

- **Councilor - Mathematics and Computer Science Division**, Council on Undergraduate Research, 2021 - Present
- **Program Coordinator**, SIGMAA Undergraduate Research, 2021 - Present
- **Chair**, Intermountain Section - Mathematical Association of America, 2020 - 2023
- **Student Research League Coordinator**, American Mathematical Association of Two-Year Colleges, 2020 - Present
- **Vice Chair of Programs**, BIG SIGMAA, MAA, 2020 -2022.