NC STATE Engineering

2020-21

NEW FACULTY

CONTENTS

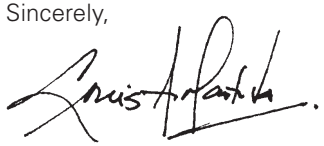
FROM THE **DEAN OF ENGINEERING**

Dear Friends and Colleagues,

This year, the College of Engineering at North Carolina State University welcomes 12 new faculty members. We feel very fortunate to have recruited this distinguished and talented group. We are confident that their talents and accomplishments will take our college to even higher levels of achievement and provide our undergraduate and graduate students with exciting, new opportunities to strengthen the breadth and depth of their education. We are grateful to the departmental faculty recruiting committees and department heads for their exceptional work in attracting such outstanding candidates. Their insight and judgment were critical to the task, and the college has richly benefited from their efforts. We also want to acknowledge the significant commitments that have been made to the college by the university and the state that have facilitated this recruitment process. We are delighted with this important show of support and are excited about the prospects that our growing faculty will provide in the future.

We also extend a very warm and cordial welcome to our new faculty members and are delighted that you are now part of NC State's College of Engineering family. Please be assured that we are committed to providing you with an environment that will facilitate your success, allow you to achieve your full potential and ultimately turn your ideas and dreams into reality.

Sincerely,



Louis A. Martin-Vega, Ph.D.
Professor and Dean

LUCIE GUERTAULT

Assistant Professor

Ph.D. (2015), Claude Bernard University, France

Research Interests: Application of fluid mechanics principles to the study of flow, sediment and contaminant transport in rivers and floodplains; student learning and success in environmental and ecological engineering disciplines.

Guertault received her B.S. and M.S. in fluid mechanics engineering with a concentration in water resources from the French Engineering School of Electrical Engineering, Electronics, Computer Science, Hydraulics and Telecommunications. She received her Ph.D. in fluid mechanics from Claude Bernard University, Lyon, France in 2015. After her Ph.D., she joined the Department of Biosystem and Agricultural Engineering at Oklahoma State University as a postdoctoral researcher. Later, she became a post-doctoral researcher in the Department of Biological and Agricultural Engineering (BAE) at NC State University before joining the NC State faculty in 2020.

Presently, she studies the mechanisms controlling short-circuiting and preferential flow in floodplains and riparian areas and their impact on contaminant leaching from upland sources into waterbodies using a combination of laboratory experiments, field investigations and numerical modeling. She also studies how altered river flow regimes caused by increased dam and groundwater pumping affect aquatic habitat suitability for an endangered endemic fish species of the Great Plains using remote sensing and numerical modeling. Additionally, she is collaborating with STEM Education faculty members to assess how the change to online instruction due to COVID-19 impacted senior design capstone courses in the BAE discipline.

Guertault, L. and Fox, G.A., 2020. Performance of preferential flow models in predicting infiltration through a remolded soil with artificial macropores. *Vadose Zone Journal.* 19:e20055 https://doi.org/10.1002/vzj2.20055

Guertault, L., Fox, G. and Brewer, S., 2018. Geomorphic identification of physical habitat features in a large, altered river system. *In River Flow 2018 - Ninth International Conference on Fluvial Hydraulics E3S Web of Conferences, EDP Sciences*, 40:02031.

Wardinski, K.M., **Guertault, L.**, Fox, G.A. and Castro-Bolinaga, C.F., 2018. Suitability of a linear model for predicting cohesive soil detachment during jet erosion tests. *Journal of Hydrologic Engineering,* 23(9).

Guertault, L., Camenen, B., Paquier, A. and Peteuil, C., 2018. A one-dimensional process-based approach to study reservoir sediment dynamics during management operations. *Earth Surface Processes and Landforms,* 43(2):373-386.

DEPARTMENT OF BIOLOGICAL AND AGRICULTURAL ENGINEERING

CHAD A. POOLE

Assistant Professor

Ph.D. (2015), North Carolina State University

Research Interests: Water resiliency in a changing climate, systems and technology to improve the use and quality of water in rural areas.

Poole received his B.S. in biological and agricultural engineering (BAE) in 2003 from NC State, concentrating in environmental and agricultural machinery engineering with a minor in agricultural business management. He received both his M.S. (2006) and Ph.D. (2015) in BAE at NC State focusing on soil and water engineering related to land applied animal waste management and water quality, quantity and crop yield benefits of drainage water management systems. He has served at NC State as a research associate / scholar from 2006-19. He is also a USDA NIFA Fellow.

Poole has an extensive background in production agriculture, drainage and irrigation system design, and is a registered professional engineer in North Carolina. Presently, he studies water use and new technologies to better manage water as a resource.

Poole, C.A., Skaggs, R.W., Cheschier, G.M., Youssef, M.A. and Crozier, C.R., 2018. Effects of drainage water management on nitrate nitrogen loss to tile drains in North Carolina. *Transactions of the ASABE*, 61(1):233-244. https://doi.org/10.13031/trans.12296

Poole, C.A., Skaggs, R.W., Cheschier, G.M., Youssef, M.A. and Crozier, C.R., 2013. Effects of drainage water management on crop yields in North Carolina. *Journal of Soil and Water Conservation.* 68(6):429-437. https://doi.org/10.2489/jswc.68.6.429

Poole, C.A., Burchell, M. and Youssef, M.A., 2018. Controlled drainage-an important practice to protect water quality that can enhance crop yields. *North Carolina State Cooperative Extension*, AG-851. https://content.ces.ncsu.edu/controlled-drainage

Poole, C.A., Skaggs, R.W. and Youssef, M.A., 2020. Agricultural subsurface drainage cost in North Carolina. *North Carolina State Cooperative Extension*, AG-871. https://content.ces.ncsu.edu/agricultural-subsurface-drainage-cost-in-north-carolina

Poole, C.A., Skaggs, R.W. and Youssef, M.A., 2020. Basic information for determining drain spacing on North Carolina soils. *North Carolina State Cooperative Extension*, AG-872. https://content.ces.ncsu.edu/basic-information-for-determining-drain-spacing-on-north-carolina-soils

WILLIAM (JOE) SAGUES

Assistant Professor

Ph.D. (2020), North Carolina State University

Research Interests: CO_2 sequestration, CO_2 utilization, C1-C5 fermentation, soil carbon enhancement, graphitic carbon materials, bio-based energy storage, systems modeling, techno-economic analysis.

Sagues earned his B.S. in 2012 in agricultural and biological engineering from the University of Florida, M.S. in agricultural and biological engineering and chemical engineering in 2017 from the University of Florida, and Ph.D. in forest biomaterials in 2020 from NC State. During graduate school, Sagues was awarded the Department of Energy's (DOE) Office of Science Graduate Student Research Fellowship, which provided funding to complete part of his dissertation research at the National Renewable Energy Laboratory. In addition, he spent time as a Technology-to-Market Scholar at the DOE's Advanced Research Projects Agency-Energy and Summer Scholar at the American Chemical Society's Green Chemistry Institute. Presently, he is principal investigator of the Biocarbon Utilization and Sequestration (BUS) Laboratory.

He is developing technologies that utilize and sequester biogenic carbon. These technologies can be broadly classified as natural and engineered. An example of a natural technology includes enhanced mineralization of soils to sequester CO_2. An example of an engineered technology includes bio-based graphitic anode material for use in lithium-ion batteries. Each technology pursued undergoes techno-economic and carbon life cycle assessments.

Sagues, W.J., Jameel, H., Sanchez, D.L. and Park, S., 2020. Prospects for Bioenergy with Carbon Capture & Storage (BECCS) in the United States pulp and paper industry. *Energy and Environmental Science*, 8.

Sagues, W.J., Assis, C.A., Hah, P., Sanchez, D.L., Johnson, Z., Acharya, M., Jameel, H. and Park, S., 2019. Decarbonizing agriculture through the conversion of animal manure to dietary protein and ammonia fertilizer. *Bioresource Technology*, 297.

Sagues, W.J., Jameel, H., Park, S. and Sanchez, D.L., 2019. Enhanced carbon dioxide removal from coupled direct air capture-bioenergy systems. *Sustainable Energy and Fuels*, 3:3135-3146.

Sagues, W.J., Jain, A., Brown, D., Aggarwal, S., Suarez, A., Kollman, M., Park, S. and Argyropoulos, D.S., 2019. Are lignin-derived carbon fibers graphitic enough?. *Green Chemistry*, 21:4253-4265.

Sagues, W.J., Bao, H., Nemenyi, J. and Tong, Z., 2018. Lignin-first approach to biorefining: utilizing fenton's reagent and supercritical ethanol for the production of phenolics and sugars. *ACS Sustainable Chemistry and Engineering*, 6(4):4958-4965.

XU LIU

Assistant Professor

Ph.D. (2014), Rice University

Research Interests: Program analysis in high-performance computing systems.

Liu received his B.S. in software engineering from Beihang University. He received his M.S. in computer science from Chinese Academy of Sciences and a Ph.D. in computer science from Rice University. Prior to joining the NC State faculty, he was an assistant professor at the Department of Computer Science at the College of William and Mary.

He works on building performance tools to pinpoint and optimize inefficiencies in HPC code bases. He has developed several open-source profiling tools, which are used worldwide at universities, DOE national laboratories, and industrial companies. Liu has published a number of papers in high-quality venues. His papers received Best Paper Award at SC'15, PPoPP'18, PPoPP'19, and ASPLOS'17 Highlights, as well as Distinguished Paper Award at ICSE'19. His recent ASPLOS'18 paper has been selected as ACM SIGPLAN Research Highlights in 2019 and nominated for CACM Research Highlights. Liu is the recipient of a 2019 IEEE TCHPC Early Career Researchers Award for Excellence in High Performance Computing.

Zhao, Q.D., **Liu, X.** and Chabbi, M., 2020. DRCCTPROF: a fine-grained call path profiler for ARM-based clusters. *The International Conference for High Performance Computing, Networking, Storage and Analysis*.

Su, P.F., Wen, S.S., Yang, H.L., Chabbi, M. and **Liu, X.**, 2019. Redundant loads: a software inefficiency indicator. *The International Conference on Software Engineering*, distinguished paper award.

Wang, Q.S., Su, P.F., Chabbi, M. and **Liu, X.**, 2019. Lightweight hardware transactional memory profiling. *The 24th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, best paper award.

Wen, S.S., **Liu, X.**, Byrne, J. and Chabbi, M., 2018. Watching for software inefficiencies with witch. *The 23rd International Conference on Architectural Support for Programming Languages and Operating Systems*, ACM SIGPLAN research highlight.

Wen, S.S., Chabbi, M. and **Liu, X.**, 2017. RedSpy: exploring value locality in software. *The 22nd International Conference on Architectural Support for Programming Languages and Operating Systems*, Apr 8-12, Xi'an, China, best paper finalist.

AMRO AWAD

Assistant Professor

Ph.D. (2016), North Carolina State University

Research Interests: Computer architecture, secure hardware, memory systems, system architecture.

Awad earned his Ph.D. in computer engineering from NC State in 2016. Before joining NC State, he was an assistant professor at the University of Central Florida (UCF) for three years. Prior to joining academia, he was a senior member of technical staff (SMTS) at Sandia National Laboratories in Albuquerque, NM.

Awad had several research stints at government and industrial research labs, such as AMD Research, Los Alamos National Lab, HP Labs and Air Force Research Laboratory. He holds six U.S. patents and has several pending. His research has been published in the most prestigious computer architecture conferences, such as ISCA, MICRO, ASPLOS, and HPCA. His research group has been funded by DARPA, Sandia National Laboratories, NSF, Naval Surface Warfare Center and Air Force Research Lab. His research interests include secure hardware architectures, memory systems and system-level integration of emerging technologies.

Zhou, J., **Awad, A.** and Wang, J., 2020. Lelantus: fine-granularity copy-on-write operations for secure non-volatile memories. *ACM/IEEE The 47th International Symposium on Computer Architecture (ISCA'20).*

Zubiar, K.A. and **Awad, A.**, 2019. Anubis: ultra-low overhead and practical recovery time for secure non-volatile memories. *ACM/IEEE The 46th International Symposium on Computer Architecture (ISCA'19).*

Awad, A., Ye, M., Solihin, Y., Njilla, L. and Zubair, K.A., 2019. Triad-NVM: persistency for integrity-protected and encrypted non-volatile memories. *ACM/IEEE The 46th International Symposium on Computer Architecture (ISCA'19).*

Ye, M., Hughes, C. and **Awad, A.**, 2018. Osiris: a low-cost mechanism to enable restoration of secure non-volatile memories. *The 51st IEEE/ACM International Symposium on Microarchitecture (MICRO'18).*

Awad, A., Wang, Y.P., Shands, D. and Solihin, Y., 2017. ObfusMem: a low-overhead access obfuscation for trusted memories. *ACM/IEEE The 44th International Symposium on Computer Architecture (ISCA'17).*

AMAY BANDODKAR

Assistant Professor

Ph.D. (2016), University of California, San Diego

Research Interests: Soft electronics, self-powered/low power sensors, decentralized sensors, bioelectronics, heterogenous assembly, unconventional fabrication, wearables, implants.

Bandodkar received his B.S. in applied chemistry from the Indian Institute of Technology – Banaras Hindu University. He received his Ph.D. in nanoengineering from University of California, San Diego. He is completing his postdoctoral research in the Department of Materials Science and Engineering at Northwestern University and will start as an assistant professor at NC State in Jan. 2021.

He is the recipient of the MRS Graduate Student Award, Metrohm Young Chemist Award, Siebel Scholars Award, and Interdisciplinary Research Award (UC San Diego). He works at the interface of electronics, chemistry, materials science and biology to develop tissue-integrated, wireless, biochemical sensors and energy devices that provide previously inaccessible insights into human physiology.

Bandodkar, A., *et al*, 2020. Sweat-activated microfluidic batteries as biocompatible, flexible energy sources for epidermal electronics. *Nature Electronics*, https://doi.org/10.1038/s41928-020-0443-7.

Bandodkar, A., *et al*, 2019. Battery-free, skin-interfaced microfluidic/electronic system for simultaneous electrochemical, colorimetric & volumetric sweat analysis. *Science Advances*, 5:eaav3294.

Bandodkar, A., *et al*, 2019. Soft, skin-interfaced microfluidic systems with passive galvanic stopwatches for precise chronometric sampling of sweat. *Advanced Materials*, 31:1902109.

Bandodkar, A., *et al*, 2017. Soft, stretchable, high power density electronic skin-based biofuel cells for scavenging energy from human sweat. *Energy and Environmental Science*, 10:1581.

Bandodkar, A., *et al*, 2016. Highly stretchable fully-printed CNT-based electrochemical sensors and biofuel cells: combining intrinsic and design-induced stretchability. *Nano Letters*, 16:721.

NURIA GONZÁLEZ-PRELCIC

Associate Professor

Ph.D. (2000), The University of Vigo, Spain

Research Interests: Signal processing theory, signal processing and machine learning, filter banks, compressive sampling and estimation, multicarrier modulation, massive MIMO, MIMO processing for millimeter wave communication and sensing.

González-Prelcic received her Ph.D. in electrical engineering in 2000 from the University of Vigo, Spain. She joined the faculty at NC State as an associate professor in 2020. In addition to her main research interests, she is also interested in joint positioning and communication, joint sensing and communication, radar signal processing, radar and communications co-existence, multi-vehicle sensor fusion and autonomous navigation.

González-Prelcic has published more than 80 papers in the topic of signal processing for millimeter wave communications, including a highly cited tutorial published in the *IEEE Journal of Selected Topics in Signal Processing*. She is an editor for *IEEE Transactions on Wireless Communications*. She is an elected member of the IEEE Sensor Array and Multichannel Technical Committee. She was the founding director of the Atlantic Research Center for Information and Communication Technologies (atlanTTic) at the University of Vigo, where she was also an associate professor of the signal theory and communications department.

González-Prelcic, N., Xie, H., Palacios, J. and Shimizu,T., 2020. Channel tracking and hybrid precoding for wideband hybrid millimeter wave MIMO systems. *To appear, IEEE Transaction on Wireless Communications*.

Xie, H. and **González-Prelcic, N.**, 2020. Dictionary learning for channel estimation in hybrid frequency-selective mmWave MIMO. *To appear, IEEE Transaction on Wireless Communications*.

Ali, A., **González-Prelcic, N.** and Ghosh, A., 2020. Passive radar at the roadside unit to configure millimeter wave vehicle-to-infrastructure links. *To appear, IEEE Transaction on Vehicular Technology*.

Rodríguez-Fernández, J. and **González-Prelcic, N.**, 2019. Channel estimation for hybrid mmWave MIMO systems with CFO uncertainties. *IEEE Transaction on Wireless Communications*.

Heath, R.W., **González-Prelcic, N.**, Wonil Roh, S. and Sayeed, A., 2016. An overview of signal processing techniques for millimeter wave MIMO systems. *IEEE Journal of Selected Topics in Signal Processing*, 10(3):436-453.

Méndez-Rial, R., Rusu, C., **González-Prelcic, N.**, Alkhateeb, A. and Heath, R. W., 2016. Hybrid MIMO architectures for millimeter wave communications: phase shifters or switches?. *IEEE Access*, 4:247-267.

ROBERT HEATH

Distinguished Professor

Ph.D. (2002), Stanford University

Research Interests: Wireless communication; signal processing; sensing: 5G / 6G, MIMO communications, millimeter wave / THz, joint communication and radar; circuit-aware signal processing; machine learning for communications; vehicular communication systems.

Heath received his B.S. (1996) and M.S. (1997) from the University of Virginia and his Ph.D. (2002) from Stanford University, all in electrical engineering. From 1998 to 2001, he was a senior member of the technical staff, then a senior consultant at Iospan Wireless Inc., where he worked on the design and implementation of the physical and link layers of the first commercial MIMO-OFDM communication system. From 2002 to 2020, he was with the Department of Electrical and Computer Engineering at The University of Texas at Austin, where he was a Cockrell Family Regents Chair in Engineering and founded the Situation Aware Vehicular Systems initiative. He is also president and CEO of MIMO Wireless Inc. and chief innovation officer at Kuma Signals LLC.

Heath is currently editor-in-chief of *IEEE Signal Processing Magazine*. He received the 2017 IEEE Communication Theory Technical Committee Outstanding Service Award, the 2018 IEEE Wireless Communications Technical Committee (WTC) Recognition Award, the 2017 EURASIP Technical Achievement Award and is co-recipient of the 2019 IEEE Kiyo Tomiyasu Award. He was a distinguished lecturer in the IEEE Signal Processing and Vehicular Technology Societies and is a highly cited researcher. He is a fellow of the National Academy of Inventors and a fellow of the IEEE. He is also a licensed amateur radio operator, a private pilot and a registered professional engineer in Texas.

Heath, R.W., 2019. Foundations of MIMO communication. *Cambridge University Press*.

Heath, R.W., 2017. Introduction to wireless digital communication. *Prentice Hall*.

Heath, R.W., 2014. Millimeter wave wireless communications. *Prentice Hall*.

Zhu, D., Bendlin, R., Akoum, S., Ghosh, A. and **Heath, R.W.**, 2020. Double-sequence frequency synchronization for wideband millimeter-wave systems with few-bit ADCs. *IEEE Transactions on Wireless*, 19(2):1357-1372.

KAVEH AHADI

Assistant Professor

Ph.D. (2019), University of California, Santa Barbara

Research Interests: Using molecular beam epitaxy to grow and manipulate quantum matter, the novel phases of matter at the intersection of non-trivial topology and emergent phenomena, a wide range of transport phenomena and novel electronic device applications of high-quality thin films and heterostructures.

Ahadi received his B.S. in materials engineering from the Azad University. He holds a M.Sc. in ceramics engineering from Sharif University of Technology and a M.Sc. in materials engineering from University of Alberta. He received his Ph.D. in materials science from University of California at Santa Barbara, prior to joining the NC State faculty.

Presently, he studies high quality thin films and heterostructures of quantum materials grown by molecular beam epitaxy. He also studies the fundamental interplay between underlying lattice symmetry and novel phases of matter. He is working toward harnessing epitaxial strain and broken symmetry, inherent to the abrupt heterointerfaces, to construct metastable quantum materials with enhanced properties for novel device applications.

Ahadi, K., Galletti, L., Li, Y., Salmani-Rezaie, S., Wu, W. and Stemmer, S., 2019. Enhancing superconductivity with strain in $SrTiO_3$. *Science Advances*, 5:120.

Ahadi, K., Lu, X., Salmani-Rezaie, S., Marshall, P.B., Rondinelli, J.M. and Stemmer, S., 2019. Anisotropic magnetoresistance in itinerant, antiferromagnetic $EuTiO_3$. *Physical Review B*, 99:041106(R).

Ahadi, K., Gui, Z., Porter, Z., Lynn, J.W., Xu, Z., Wilson, S.D., Janotti, A. and Stemmer, S., 2018. Carrier density control of magnetism and Berry phases in doped $EuTiO_3$. *APL Materials*, 6:056105.

Ahadi, K., Galletti, L. and Stemmer, S., 2017. Evidence of a topological Hall effect in $Eu1_{-x}Sm_xTiO_3$. *Applied Physics Letters*, 111:172403.

Ahadi K. and Stemmer, S., 2017. Novel metal-insulator transition at the $SmTiO_3/SrTiO_3$ interface, *Physical Review Letters*, 118:236803.

RAJEEV K. GUPTA

Associate Professor

Ph.D. (2010), Monash University, Australia

Research Interests: Corrosion science and engineering, materials design, alloys, additive manufacturing.

Gupta received his B.S. in materials and metallurgical engineering from the Indian Institute of Technology Kanpur, India and Ph.D. in materials engineering from Monash University, Australia. Prior to joining the NC State faculty, he was an assistant professor of chemical, biomolecular and corrosion engineering at the University of Akron, Ohio.

His primary research interests lie in the broad areas of corrosion and material engineering. His research group focuses on understanding the structure-processing-property-performance relationships, corrosion initiation and propagation mechanisms and high temperature oxidation. The fundamental research is intended to be applied in developing new alloys, corrosion monitoring techniques and prediction of corrosion damage. Gupta's research has been continuously funded by the NSF, ONR, DOD, DOE, and industries.

Esquivel, J., Murdoch, H.A., Darling, K.A. and **Gupta, R.K.**, 2018. Excellent corrosion resistance and hardness in Al alloys by extended solid solubility and nanocrystalline structure. *Materials Research Letters*, 6:79.

Gupta, R.K., Mirza, F., Khan, M.U.F. and Esquivel, J., 2017. Aluminum containing Na_2CrO_4: inhibitor release on demand. *Materials Letters*, 205:194.

Gupta, R.K., Fabijanic, D., Dorin, T., Qiu, Y., Wang, J.T. and Birbilis, N., 2015. Simultaneous improvement in the strength and corrosion resistance of Al via high-energy ball milling and Cr alloying. *Materials and Design*, 84:270.

Gupta, R.K., Sukiman, N.L., Cavanaugh, M.K., Hinton, B.R.W., Hutchinson, C.R. and Birbilis, N., 2012. Metastable pitting characteristics of aluminium alloys measured using current transients during potentiostatic polarisation. *Electrochimica Acta*, 66:245.

Gupta, R.K., Deschamps, A., Cavanaugh, M.K., Lynch, S.P. and Birbilis, N., 2012. Relating the early evolution of microstructure with electrochemical response and mechanical performance of a Cu rich and Cu lean 7xxx aluminium alloys. *Journal of the Electrochemical Society*, 159:C492.

EDMON PERKINS

Assistant Professor

Ph.D. (2015), University of Maryland, College Park

Research Interests: Nonlinear dynamics, stochastic dynamics, vibrations, topology optimization, robotics, musical instrument design, engineering pedagogy.

Perkins received his B.S. and M.S. in mathematics from the University of Oklahoma. He received his Ph.D. in mechanical engineering from the University of Maryland, College Park. Prior to joining the NC State faculty, he was an assistant professor in the Department of Mechanical Engineering at Auburn University, where he was awarded an Office of Naval Research Young Investigator Award.

Presently, Perkins studies the effects of noise on nonlinear oscillators, which have applications to structural dynamics, sensors and actuators. He also studies adaptive oscillators, which have plastic states allowing them to store information of external stimuli. Adaptive oscillators have many applications to energy harvesting and analog frequency analyzers. He is currently analyzing biomimetic tensegrity robots, which have both rigid and flexible components. In addition to these research topics, Perkins applies vibrations theory and experimental design to musical instruments to promote undergraduate research.

Perkins, E., 2019. Restricted normal mode analysis and chaotic response of p-mode intrinsic localized mode. *Nonlinear Dynamics*, pp 1-12.

Rhea, B., **Perkins, E.** and Dean, R., 2019. High frequency realization of non-autonomous nonlinear transistor circuit. *AIP Advances*, 9(6):065112.

Kennedy, S., Price, M., Zabala, M. and **Perkins, E.**, 2019. Vibratory response characteristics of high frequency shape memory alloy actuators. *Journal of Vibration and Acoustics*, 142(1):011004.

Perkins, E. and Fitzgerald, T., 2018. Continuation method on cumulant neglect equations. *Journal of Computational and Nonlinear Dynamics*, 13(9):090913.

Perkins, E. and Balachandran, B., 2015. Effects of phase lag on the information rate of a bistable duffing oscillator. *Physics Letters A*, 379(4):308-313.

RONG YIN

Assistant Professor

Ph.D. (2018), The Hong Kong Polytechnic University

Research Interests: Advanced yarn and textile manufacturing, innovative and sustainable textile technology, performance modeling of textile products and systems, smart textiles and structures, soft actuators and robots.

Yin is an assistant professor in the Department of Textile Engineering, Chemistry and Science (TECS). He earned his doctorate in textile engineering at The Hong Kong Polytechnic University in 2018. Prior to joining TECS, he worked as a postdoctoral fellow at the Institute of Textiles and Clothing, The Hong Kong Polytechnic University.

Yin has published 30+ journal papers, conference proceedings and patents. He served as a reviewer for several international journals including *Textile Research Journal*, *Fibers and Polymers*, and *Journal of Materials Science*. He is the recipient of a Bronze Award in the 47th Geneva International Invention Exhibition; China Cooperative Innovation Award of Industrial, Research and Development; Shanghai Outstanding Graduates; Zhou Hua-sheng Scholarship; as well as a series of municipal and inter-university awards.

Yin, R., 2020. Mathematical modeling and numerical simulation of nonlinearly elastic yarn in ring spinning. *Textile Research Journal*, https://doi.org/10.1177/0040517520940807.

Yin, R., Yang, B., Ding, X.J., Liu, S., Zeng, W., Li, J., Yang, S. and Tao, X.M., 2020. Wireless multistimulus-responsive fabric-based actuators for soft robotic, human-machine interactive, and wearable applications. *Advanced Materials Technologies*, https://doi.org/10.1002/admt.202000341.

Yin, R., Tao, X.M. and Xu, B.G., 2020. Systematic investigation of twist generation and propagation in a modified ring spinning system. *Textile Research Journal*, 90(3-4):367-375.

Yin, R., Tao, X.M. and Xu, B.G., 2018. Variation of false twist on spinning process stability and resultant yarn properties in a modified ring spinning frame. *Textile Research Journal*, 88(16):1876-1892.

Yin, R., Tao, X.M. and Xu, B.G., 2016. Mathematical modeling of yarn dynamics in a generalized twisting system. *Scientific Reports*, 6:24432.

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