

Krzysztof J. Rechowicz, Ph.D.
VMASC/ODU
Curriculum Vitae

Name

Krzysztof J. Rechowicz

Campus address

Virginia Modeling Analysis and Simulation Center

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Education

Ph.D., Modeling and Simulation, Old Dominion University, Norfolk, VA

M.Eng., Mechanics and Machine Construction with a concentration in Production Engineering (5-year program), Warsaw University of Technology, Warsaw, Poland

Experience

Research Assistant Professor, Old Dominion University, Virginia Modeling, Analysis and Simulation Center, Suffolk, VA, 2014 – present

- Co-led research in simulation-based training in medical (telehealth) and defense (ship-handling and naval aviation) domains. The main objective has been insight generation from rich data collected in training environments. In total, the work has yielded \$824,430 (\$524,430 as PI).
- Co-led establishment of the Virginia Smallsat Data Consortium – a \$1.5M state initiative aimed at providing better access to datasets generated by space, air, surface and underwater unmanned platforms. Led a team of software developers and data scientists implementing solutions for data integration and analytics.
- In 2020-2021, I established and led the VMASC Agile Development Team (currently the Capability Lab) - a multidisciplinary group of developers, designers, and software engineers dedicated to creating responsive, dynamic, and accessible prototypes. Established within the team a mentorship model led by senior project scientists integrated closely with a group of junior R&D professionals, interns, and students. The team was responsible for over one million dollars in the funded effort.

- As the ODU representative to the Commonwealth Center for Advanced Manufacturing (CCAM), led and co-led research on applications of virtual and mixed reality, visualization, and computer vision to manufacturing. During two years in that position, I brought \$200,377 (\$150,407 as PI) in funded research.
- Promoted inclusion and accessibility as the guiding principles in research by incorporating inclusive and universal design in projects in various domains such as manufacturing (inclusive human-machine interfaces), cybersecurity (enabling cyber-trust in connected homes), and increasing independence of people with disabilities (leveraging IoT and sensor data for daily living skills support).

Adjunct Research Assistant Professor, Eastern Virginia Medical School, Department of Pathology and Anatomy, Norfolk, VA, 2021 – present

- Led research on applications of natural language processing to generate insight into medical students' empathy and humanism based on reflective writing in a gross anatomy course.
- Led the development of a VR-based experience for medical students presenting a story of the living anatomical donor in the context of anatomical dissection. The experience was meant to establish a student-donor relationship, increase empathy and amplify learning outcomes.

Adjunct Assistant Professor, Old Dominion University, Department of Computational Modeling and Simulation Engineering, Norfolk, VA, 2013 – present

- Advised masters and doctoral students from several departments and colleges.

Postdoctoral Research Associate, Old Dominion University, Department of Modeling, Simulation & Visualization Engineering, Norfolk, VA, 2012 – 2014

- Developed the prototype of the Nuss procedure simulator in collaboration with the Children's Hospital of the King's Daughters in Norfolk, VA.
- Proposed a method for chest shape change evaluation during minimally and non-invasive pectus excavatum treatment. The method used 3D scanning which removed the need for imaging techniques utilizing ionizing radiation.

Student Mentoring

Doctoral Thesis: Member

Christoph Tremel. Chair: Dean Krusienski. Completed Spring 2019. *Estimating Cognitive Workload in an Interactive Virtual Reality Environment using Electrophysiological and Kinematic Activity*. Biomedical Engineering. Old Dominion University, Norfolk, VA.

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Yaser Sendi. Chair: Eric Weisel. Ongoing. *Utilizing Biometric Sensors Within Merchant Maritime Simulation-Based Assessment*. Computational Modeling and Simulation Engineering Department. Old Dominion University, Norfolk, VA.

Alex Nielsen. Chair: Daniel Richards. Ongoing. *Building Cathedrals of Data: Organizational, Curricular, And Technological Challenges Facing UX Practitioners in the Field of Technical Communication*. English. Old Dominion University, Norfolk, VA.

Master's Thesis Project: Chair

Meaghan Mozingo. Completed Spring 2022. *Display Aid as a Means to Enhance Accessibility for Live Theater*. Humanities. Old Dominion University, Norfolk, VA.

Master's Thesis: Member

Matthew Gray. Chair: Jiang Li. Ongoing. *Emotion Detection Using an Ensemble Model Trained on Physiological Signals and the Inferred Arousal-Valence Space*. Electrical and Computer Engineering. Old Dominion University, Norfolk, VA.

Students Mentored under Funded Research Projects as PI or Co-PI

(* / **) Graduate / Undergraduate

Jemison Goforth**, Virtual Reality Design. Shenandoah University, Winchester, VA.
Meaghan Mozingo*, Institute for the Humanities, Old Dominion University, Norfolk, VA.
Marie Eagan*, Department of English, Old Dominion University, Norfolk, VA.
Bradley Weber**, Game Studies and Design, Old Dominion University, Norfolk, VA.
Holly Tenaglia*, School of Nursing, Old Dominion University, Norfolk, VA.
Brandon Feldhaus**, Dept. of Computer Science, Old Dominion University, Norfolk, VA.
Russell Moore**, Christopher Newport University, Newport News, VA.
Tobin Zheng**, Dept. of Computer Science, Old Dominion University, Norfolk, VA.
Simone Verela*, School of Nursing, Old Dominion University, Norfolk, VA.
Ray Loranger**, Department of Psychology, Old Dominion University, Norfolk, VA.
Matthew Gray*, Dept. of Electrical and Computer Engineering, Old Dominion University, Norfolk, VA.
Jessica Cordner**, Dept. of Electrical and Computer Engineering, Old Dominion University, Norfolk, VA.
James Unverricht*, Dept. of Psychology, Old Dominion University, Norfolk, VA.
Kevin O'Brien**, Dept. of Computer Science, Old Dominion University, Norfolk, VA.
Sequin Dong*, Dept. of Mechanical and Aerospace Engineering, Old Dominion University, Norfolk, VA.
Wei-Wen Hsu*, Dept. of Electrical and Computer Engineering, Old Dominion University, Norfolk, VA.
David DeLeon**, Department of Mechanical Engineering Technology, Old Dominion University, Norfolk, VA.
Fredous Gambo*, Digital & Lifespan Communication, Old Dominion University, Norfolk, VA.

Publications

(* / **) Graduate / Undergraduate student at the time of publication

Journal Publications

Key: IF: Impact Factor / CS: CiteScore / ND: No Data

- K. J. Rechowicz** and C. A. Elzie, "Using natural language processing to explore health profession student reflections about the significance of anatomy to themselves and their donors' lives," *Anatomical Sciences Education* (2021 IF: 5.958, 2021 CS: 7.2), *Special Edition AI in Anatomy Education*, 2022. [accepted in revision]
- C. Elzie, H. Tenaglia*, M. Eagan*, and **K. Rechowicz**, "Development of a cinemagraphic life story of anatomical donor to generate student appreciation and responsibility," *The FASEB Journal* (2020 IF: 5.191, 2020 CS: 6.1), vol. 36, no. S1, 2022. Google Scholar Cite Count: 0
- K. J. Rechowicz**, J. B. Shull, M. M. Hascall, S. Y. Diallo, and K. J. O'Brien**, "Internet-of-Things Devices in Support of the Development of Echoic Skills among Children with Autism Spectrum Disorder," *Sensors* (2021 IF: 3.837, 2021 CS: 6.4), vol. 21, no. 13, p. 4621, 2021. Google Scholar Cite Count: 0
- A. Soroczyński, P. Czyżewski, and **K. Rechowicz**, "Defects analysis of seat belt tensioner cast body," *Welding Technology Review* (IF: ND, CS: ND), vol. 92 (2), pp. 33-38, 2020. Google Scholar Cite Count: 0
- C. Tremmel*, C. Herff, T. Sato, **K.J. Rechowicz**, Y. Yamani, and D. Krusienski, "Estimating Cognitive Workload in an Interactive Virtual Reality Environment using EEG," *Frontiers in Human Neuroscience* (2017 IF: 3.209, 2020 CS: 5.1), vol. 13, p. 401, 2019. Google Scholar Cite Count: 46
- A. Soroczynski, R. Haratym, **K. J. Rechowicz**, "Energy intensity as an ecological factor in the selection of the manufacturing process," *Welding Technology Review* (IF: ND, CS: ND), 91, no. 3, 2019. Google Scholar Cite Count: 3
- M. F. Obeid*, N. Kidane*, **K. J. Rechowicz**, S. Chemlal, R. E. Kelly, and F. D. McKenzie, "Validation of an Objective Assessment Instrument for Non-Surgical Treatments of Chest Wall Deformities," *Stud Health Technol Inform* (2022 IF: 0.678, 2020 CS: 1.2), vol. 220, pp. 273-80, 2016. Google Scholar Cite Count: 11
- K. J. Rechowicz**, M. F. Obeid*, S. Chemlal, and F. D. McKenzie, "Simulation of the Critical Steps of the Nuss Procedure," *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization* (2020 IF: 2.269, 2020 CS: 3.4), vol. 3, no. 4, pp. 1-15, 2014. Google Scholar Cite Count: 5
- K. J. Rechowicz** and F. D. McKenzie, "Development and validation methodology of the Nuss procedure surgical planner," *Simulation* (2020 IF: 1.337, 2020 CS: 3), vol. 89, pp. 1474-1488, 2013. Google Scholar Cite Count: 10

- Y. Yoon*, X. Sun, J.-K. Huang, G. Hou, **K. J. Rechowicz**, and F. D. McKenzie, "Designing Natural-Tooth-Shaped Dental Implants based on Soft-Kill Option Optimization," *Computer-Aided Design and Applications* (IF: ND, 2020 CS: 1.5), vol. 10, no. 1, pp. 59-72, 2013. Google Scholar Cite Count: 15
- K. J. Rechowicz**, F. D. McKenzie, S. Y. Bawab, and R. Obermeyer, "Evaluation of Fatigue for a Pectus Bar Removal Surgical Tool Design for a Safe Clinical Practice Use Setting," *Computer-Aided Design and Applications* (IF: ND, 2020 CS: 1.5), vol. 10, no. 1, pp. 78-81, 2013. Google Scholar Cite Count: 2
- K. J. Rechowicz***, F. D. McKenzie, S. Y. Bawab, and R. Obermeyer, "Application of CAD Analysis to Update the Design for a Pectus Excavatum Bar Extraction Tool," *Computer-Aided Design and Applications* (IF: ND, 2020 CS: 1.5), vol. 9, pp. 227-234, 2012. Google Scholar Cite Count: 2

Peer-reviewed Conference Publications

- R. Siegfried, T. Mueller, M. Burgess, and **K. J. Rechowicz**, "Providing Better Feedback to Aviators through Automated Human Performance Analysis," in *Proceedings of the 2021 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC)*, Orlando, FL, 2021. Acceptance rate: 75%. Google Scholar Cite Count: 0
- D. Wittkower, S. Blackmon, **K. J. Rechowicz**, and H. Herdegen*, "Developing IoT Systems and Devices for Trust by Users with Disabilities," in *Proceedings of the IEEE International Symposium on Technology and Society (ISTAS)*, Waterloo, Ontario, Canada (virtual event), 2021. Acceptance rate: ND. Google Scholar Cite Count: 0
- S. Y. Diallo, C. J. Lynch*, **K. J. Rechowicz**, and G. Zacharewicz, "How to create empathy and understanding: narrative analytics in agent-based modeling," in *Proceedings of the 2018 Winter Simulation Conference*, Gothenburg, Sweden, 2018. Acceptance rate: 70%. Google Scholar Cite Count: 3
- K. J. Rechowicz**, S. Y. Diallo, D. A. Knowles Ball*, and J. Solomon, "Designing Modeling and Simulation User Experiences: An Empirical Study Using Virtual Art Creation," in *Proceedings of the 2018 Winter Simulation Conference*, Gothenburg, Sweden, 2018. Acceptance rate: 70%. Google Scholar Cite Count: 4
- K. J. Rechowicz**, S. Y. Diallo, H. M. Garcia, J. B. Shull, and B. Cvijetic, "Making digital sense[s]: fundamentals," in *Proceedings of the Annual Simulation Symposium*, Baltimore, Maryland, 2018. Acceptance rate: ND. Google Scholar Cite Count: 4
- K. J. Rechowicz**, H. Garcia, "Process-Driven Framework for Augmented Reality in a Manufacturing Environment," in *Proceedings of the 15th International Conference on Modeling and Applied Simulation*, the 13th International Multidisciplinary Modeling &

Simulation Multiconference, Cyprus, September 26-28, 2016. Acceptance rate: ND. Google Scholar Cite Count: 3

M. F. Obeid*, E. Heo*, **K. J. Rehowicz**, R. E. Kelly, F. D. McKenzie, "Towards a Hybrid Virtual/Physical Nuss Procedure Surgical Simulator," in *Proceedings of the International Workshop on Innovative Simulation for Healthcare*, the 12th International Multidisciplinary Modeling & Simulation Multiconference, Bergeggi, Italy, September, 21-23 2015. Acceptance rate: ND. Google Scholar Cite Count: 3

M. F. Obeid*, S. Chemlal*, **K. J. Rehowicz**, E. Heo, R. E. Kelly, F. D. McKenzie, "Improvement of a Virtual Pivot for Minimally Invasive Surgery Simulators using Haptic Augmentation," *Augmented Environments for Computer-Assisted Interventions, Lecture Notes in Computer Science*, pp. 70-79, Springer International Publishing, 2014. Acceptance rate: 65%. Google Scholar Cite Count: 2

M. F. Obeid*, **K. J. Rehowicz**, F. D. McKenzie, "Incorporating Reflection for Real-Time Multi-Configuration Haptic-Interactive Virtual Environments," in *Proceedings of the 46th Summer Computer Simulation Conference*, Monterey, California, July 6-10, 2014. Acceptance rate: ND. Google Scholar Cite Count: 2

S. Chemlal*, **K. J. Rehowicz**, M. F. Obeid, R. Kelly, and F. D. McKenzie, "Developing Clinically Relevant Aspects of the Nuss Procedure Surgical Simulator," *Studies in Health Technology and Informatics, Medicine Meets Virtual Reality 21*, vol. 196, pp. 51-55, 2014. Acceptance rate: ND. Google Scholar Cite Count: 8

K. J. Rehowicz, M. F. Obeid*, and F. D. McKenzie, "Patient-Specific Modeling of Pectus Excavatum for the Nuss Procedure Simulation," *Bio-Imaging and Visualization for Patient-Customized Simulations, Lecture Notes in Computational Vision and Biomechanics*, vol. 13, J. M. R. S. Tavares, X. Luo, and S. Li, Eds., ed, 2014. Acceptance rate: ND. Google Scholar Cite Count: 8

K. J. Rehowicz and F. D. McKenzie, "A strategy for simulating and validating the Nuss procedure for the minimally invasive correction of pectus excavatum," in *Biomedical Engineering and Informatics (BMEI), 2011 4th International Conference on*, 2011, pp. 2370-2374. Acceptance rate: ND. Google Scholar Cite Count: 2

K. J. Rehowicz*, R. Kelly, M. Goretsky, F. W. Frantz, S. B. Knisley, D. Nuss, and F. D. McKenzie, "A Design for Simulating and Validating the Nuss Procedure for the Minimally Invasive Correction of Pectus Excavatum," in *Proceedings of Medicine Meets Virtual Reality 18*, Newport Beach, 2011. Acceptance rate: ND. Google Scholar Cite Count: 6

K. J. Rehowicz*, F. D. McKenzie, S. Y. Bawab, and R. Obermeyer, "Optimized surgical tool for pectus bar extraction," in *Engineering in Medicine and Biology Society (EMBC), 2010 Annual International Conference of the IEEE*, 2010, pp. 1254-1257. Acceptance rate: ND. Google Scholar Cite Count: 2

K. J. Rechowicz*, R. Kelly, M. Goretsky, F. Frantz, S. Knisley, D. Nuss, and F. D. McKenzie, "Development of an average chest shape for objective evaluation of the aesthetic outcome in the Nuss procedure planning process," in *Proceedings of Southern Biomedical Engineering Conference*, College Park, MD, USA, 2010. Acceptance rate: ND. Google Scholar Cite Count: 7

K. J. Rechowicz*, F. McKenzie, Z. Yan, S. Bawab, and S. Ringleb, "Investigating an approach to identifying the biomechanical differences between intercostal cartilage in subjects with pectus excavatum and normals in vivo: preliminary assessment of normal subjects," in *Proceedings of SPIE Medical Imaging 2009 Conference*, Orlando, Florida, USA, 2009. Acceptance rate: 68%. Google Scholar Cite Count: 2

Patents

F. McKenzie, S. Bawab, K. Rechowicz, and R. Obermeyer, "Surgical tool for pectus bar extraction," US Patent 8,632,549, 2014.

Grants-Awarded

As PI

Program for Undergraduate Research and Scholarship: Development of a domain-specific lexicon from medical students' reflections in a gross anatomy course (2022-2023). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$10,000. 100% of Credit.

IRAD: TrustUp – Application for Enabling Cyber-Trust in Connected Homes (2021-2022). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$26,581. 25% of Credit.

IRAD: Living Donor VR Experience (2021). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$18,170. 20% of Credit.

IRAD: Intelligent Tutoring System Design, Infrastructure, and Services (2021-2022). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$232,142. 30% of Credit.

IRAD: Telehealth Etiquette Trainer with Real-Time Feedback and Post-Visit Assessment (2019-2021). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$81,538. 100% of Credit.

Repurposing Computational Analyses of Tactics for Training Assessments Phase II (2019-2020). K. Rechowicz (VMASC/ODU, PI). Prevalance Inc., \$150,000. 50% of Credit.

Repurposing Computational Analyses of Tactics for Training Assessments Phase I & Option (2018-2019). K. Rechowicz (VMASC/ODU, PI). Prevalance Inc., \$60,750. 100% of Credit.

Machining Process Monitoring (2016). K. Rechowicz (VMASC/ODU, PI). Commonwealth Center for Advanced Manufacturing, \$64,000.00. 40% of Credit.

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Smartphone-based System for Manual and Semi-Automatic Tool Wear Inspection based on 2D images (2015). K. Rechowicz (VMASC/ODU, PI). Commonwealth Center for Advanced Manufacturing, \$14,500.00. 100% of Credit.

Augmented Reality for Process Control (2015-2016). K. Rechowicz (VMASC/ODU, PI). Commonwealth Center for Advanced Manufacturing, \$71,907.00. 60% of Credit.

As Co-PI

GROW M&S: Enhancing Graduate Research Opportunities and Workforce Readiness in Modeling and Simulation (2021-2024). J. Johnson (VMASC/ODU, PI). U.S. Dept. of Education, \$1,151,446. 7% of Credit.

Philosophical Thought Experiments in Virtual Reality (2021). A. Kissel (ODU, PI). National Endowment for the Humanities, \$100,000. 25% of Credit.

Human-Machine Accessible Interfaces for Industry 5.0 (2021-2022). H. Garcia (VMASC/ODU, PI). Old Dominion University, \$50,000. 13% of Credit.

Distributed Secure Live, Virtual, and Constructive (LVC) Air Combat System Training Environment (SLATE) (2020-2021). E. Weisel (VMASC/ODU, PI). Circadence, \$700,000. 30% of Credit.

Trust, Interoperability and Inclusion: A Framework for Creating Cyber-Trust in Connected Homes (2021-2022). Stephanie Blackmon (William&Mary, PI). Coastal Virginia Cybersecurity Initiative, Total amount: \$150,000, ODU: \$54,400. Note: Proposal submitted directly to CoVA CCI without ODURF-prepared budget. No formal credit split. Assumed: 50% of Credit.

Modeling Religious Change (2020-2022). Saikou Diallo (VMASC/ODU, PI). John Templeton Foundation, Total amount: \$3,998,981, ODU: \$420,627. 50% of Credit.

Advanced Ship-Handling Simulators Phase II (2020-2022), E. Weisel (VMASC/ODU, PI). D'Angelo Technologies LLC, \$450,000. 20% of Credit.

Human-Machine Accessible Interfaces for Intelligent Factory (2020). H. Garcia (VMASC/ODU, PI), Old Dominion University Innovation Fund, \$50,000. 30% of Credit.

Virginia SmallSat Data Consortium (2020-2022). Saikou Diallo (VMASC/ODU), PI., Virginia Research Investment Fund, Total amount: \$1,500,000, ODU: \$746,081. 50% of Credit.

NATO Innovation Hub Synthetic Environment for Testing and Evaluation Study (2019). Jose Padilla (VMASC/ODU,PI). NATO Innovation Hub, \$40,000. 25% of Credit

Naval Special Warfare Command Modeling and Simulation (2018), H. Garcia (VMASC/ODU, PI). Naval Special Warfare Group One, \$40,000. 32% of Credit.

Integration of Visualization and Lava-3DI (2014-2015). Yuzhong Shen (ODU, PI). Commonwealth Center for Advanced Manufacturing, \$49,970.00. 40% of Credit.

Grants – Not Awarded

As PI

Development of Inclusive and Accessible Experimental Environment for Educating and Enabling People with Autism Spectrum Disorder to Live Independently (2022). K. Rechowicz (VMASC/ODU, PI). Amazon Research Grant, \$80,000. 70% of Credit.

Towards Computer-assisted Telehealth Etiquette Training: Healthcare Professional Intent Classification and Virtual Encounter Modeling (2020-2021). K. Rechowicz (VMASC/ODU, PI). The Jeffress Trust, \$100,000. 33% of Credit.

NAVY SBIR N193-A03: AR platform for training and maintenance operations Phase I (2020). K. Rechowicz (VMASC/ODU, PI). Ario, \$36,000, 50% of Credit.

SBIR: Training Cycle Enhancement: Flexible interface for implementing trainee state-driven customizations of virtual training environments (2019-2020). K. Rechowicz (VMASC/ODU, PI). Prevailance, Inc., \$15,272. 100% of Credit.

Visualizing the Deep Past (2019-2020). K. Rechowicz (VMASC/ODU, PI). Center for Mind and Culture, \$215,517. 100% of Credit.

Web-based Virtual Reality Experience of the Barry Art Museum at Old Dominion University (2017). K. Rechowicz (VMASC/ODU, PI). Old Dominion University, \$20,563. 40% of Credit.

Surgical Tool for Pectus Bar Extraction (2016-2017). K. Rechowicz (VMASC/ODU, PI). Center for Innovative Technology, \$100,000. 70% of Credit.

National Instruments Academic Research Grant (2015-2016). K. Rechowicz (VMASC/ODU, PI). National Instruments, \$47,976. 75% of Credit.

As Co-PI

Attentional Control and Audio/Visual Retention of Students for the Design of Accessible Classrooms (2020-2021). S. Jayarathna (ODU, PI). The Jeffress Trust, \$100,000. 25 % of Credit.

Philosophical Thought Experiments in Virtual Reality (2020). A. Kissel (ODU, PI). Virginia Humanities Society, \$10,000. 25% of Credit.

The Virtual Informal Access to STEM Disciplines project (viaSTEM) (2020-2022). J. Padilla (VMASC/ODU, PI). NSF, \$104,623. 35% of Credit.

III: Small: Simulated Learning Environment (SLE) for the Inclusive and Accessible Classroom of the Future (2020-2021). S. Jayarathna (ODU, PI). NSF, \$500,000. 25% of Credit.

REU Site: Undergraduate Research Experiences in Data Science (2020-2023). S. Jayarathna (ODU, PI). NSF, \$326,213. 10% of Credit.

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An Integrated Simulation Environment for Multi-Modal Sensing and Predicting Brain Health (2020-2021). S. Jayarathna (ODU, PI). NASA TRISH BRASH, Total amount: \$744,117, ODU amount: 472,693. 30% of Credit.

The Virtual Informal Access to STEM Disciplines project (viaSTEM) (2019-2020). J. Padilla (VMASC/ODU, PI). Center for Mind and Culture, \$223,645. 33% of Credit.

CHS: Medium: Collaborative Research: Enhancing the Virtual Reality Experience via EEG User-state Feedback (2019-2023). Y. Yamani (ODU, PI). NSF, \$594,673. 50% of Credit.

Open-Source-potentiated, 3D Multimodal Ultrasound and Machine Learning-based Planning for Robotic Breast Tumor Surgery (2019-2021). M. Audette (ODU, PI). Commonwealth Health Research Board, \$200,000.00. 20% of Credit.

NCS-FO: Enhancing the Virtual Reality Experience via EEG User-state Feedback (2018-2022). D. Krusienski (ODU, PI). NSF, \$714,774. 15% of Credit.

Religious Projections (2018-2021). S. Diallo (VMASC/ODU, PI). Center for Mind and Culture, \$650,000. 30% of Credit.

The Virtual Informal Access to STEM Disciplines project (viaSTEM) (2018-2020). S. Diallo (VMASC/ODU, PI). Center for Mind and Culture, \$1,188,932. 34% of Credit.

Composite Conceptual Designs Using Smart Semantic Objects Ecosystem (2017-2019). E. Weisel (VMASC/ODU). DARPA, \$997,840. 40% of Credit.

Computer Vision-Based Expert System for Geometric Feature Recognition and Reconstruction for Data Flow between CAD and CAE (2018-2019). S. Diallo (VMASC/ODU, PI). MYMIC Inc., \$74,925. 34% of Credit.

Visualizing the Deep Past: Activating human inquiry in relation to complex data sets through computer simulation and 3D visualization (2018-2021). S. Diallo (VMASC/ODU, PI). Center for Mind and Culture, \$1,245,508. 25% of Credit.

Virtual Reality Enabled Treatment for Nightmare Disorder (2018-2023). S. Diallo (VMASC/ODU, PI). Boston University School of Medicine, \$2,184,685. 20% of Credit.

Augmented Reality Based Simulation Framework for Personalized Trauma Response Training (2017-2019). M. Audette. Commonwealth Health Research Board, \$200,000. 20% of Credit.

Research Papers and Posters Presented at Professional Meetings

D. E. Wittkower, S. J. Blackmon, **K. Rechowicz**, and H. Herdegen*, "Developing IoT systems and devices for trust by users with disabilities," in *2021 IEEE International Symposium on Technology and Society (ISTAS)*, 28-31 Oct. 2021.

N. Kidane*, S. Chemlal*, M. F. Obeid*, **K. J. Rechowicz**, F. D. McKenzie, R. E. Kelly, "Mobile Application for Objective Measurement of Pectus Excavatum Vacuum Bell

Treatment," presented at the 2015 Spring Simulation Multi-Conference (SpringSim'15), Alexandria, VA, April 12 - 15, 2015.

S. Chemlal*, **K. J. Rechowicz**, M. F. Obeid*, F. D. McKenzie, "Modeling Insertion Point for General Purpose Haptic Device Simulations for Minimally Invasive Surgeries," presented at the 2014 IEEE Symposium on 3D User Interfaces (3DUI 2014), Minneapolis, MN, March 29-30, 2014.

K. J. Rechowicz, F. D. McKenzie, M. J. Goretsky, R. E. Kelly, and A. N. Deyerle, "Validation of Surface 3D Scanning for Measurement of Postsurgical Improvement following Nuss Procedure for Pectus Excavatum," presented at the 2013 Annual Clinical Congress of American College of Surgeons, Poster presentation, Washington D.C., October 6-10, 2013.

K. J. Rechowicz*, R. Kelly, M. Goretsky, F. W. Frantz, S. B. Knisley, D. Nuss, and F. D. McKenzie, "Comparison of Pre- and Post-operative Scans as a Means to the Objective Measurement of Improvement of the Nuss Procedure and Validation of the Planning Process," presented at the International Meeting on Simulation in Healthcare, New Orleans, Louisiana, 2011.

In the News

Kennedy, A. (2022). VMASC Awarded \$1.15 Million from U.S. Department of Education for Graduate Research. News@ODU. Retrieved on May 17, 2022 from https://www.odu.edu/news/2022/1/vmasc_doe_grant#.YoPF0HXMKMo

Larmagnac-Matheron, O. (2021). The Trolley Problem in Virtual Reality: Experience It! (in French). Retrieved on May 1, 2022 from <https://www.philomag.com/articles/le-dilemme-du-tramway-en-realite-virtuelle-faites-lexperience>

Matzke-Fawcett, A. (2021). Joint ODU Project Aims to Help Bring a Moral Component to Technology. News@ODU. Retrieved on May 17, 2022 from https://www.odu.edu/news/2021/2/vmasc_a_1_project#.YoPGI3XMKMo

Zimmerman, J. (2021). VMASC and Partners to Host Free Virtual Hackathon for High School and College Students. News@ODU. Retrieved on May 17, 2022 from https://www.odu.edu/news/2021/10/vmasc_hackathon#.YqyQ8qLMJjE

Hudson, S. (2018). ODU & CHKD Team Up to Help Kids with Sunken Chests. Retrieved on May 17, 2022 from <https://www.wavy.com/news/odu-chkd-team-up-to-help-kids-with-sunken-chests/>

O'Hallarn, B. (2016). VMASC Researchers Host Archaeologists from Around the World, Examining 3-D Visualization of Ancient Settlement. News@ODU. Retrieved on May 17, 2022 from https://www.odu.edu/news/2016/11/civilization_visuali#.YolfWe7MJnI

University Service

- Between 2014-2016, the ODU on-site representative at the Commonwealth Center for Advanced Manufacturing in Disputanta, VA. Interacted and collaborated with 25+

industry and university members. Involved in identifying challenges that industry members face in the advanced manufacturing domain and building collaborative research teams for industry-funded projects.

- Since 2017, ODU representative to the Commonwealth Center for Advanced Manufacturing's Technical Advisory Council.
- Strategic Planning Committee for 2023-2028, Challenges and Opportunities Subcommittee
- VMASC/ODU project scientist search committees (seven)
- VMASC/ODU postdoc search committees (two)
- Served on 3 ODU graduate student Ph.D. dissertation committees (CMSE, ECE & English)
- Served on 2 ODU graduate master's thesis committees (ECE & Arts)
- Co-organized [the Inclusive Gaming, Leveling The Playing Field: Designing Games For Everyone competition](#) (2020)

Membership in Professional Societies

- IEEE, Senior Member, 2010 – present
- Society for Modeling and Simulation International (SCS), 2012 - present

Professional Service

Publication Peer-Reviewer

- Simulation: Transactions of the Society for Modeling and Simulation International
- Life
- Sensors
- Systems
- Electronics
- Spring Simulation Conference
- Winter Simulation Conference
- Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization
- Conference on Principles of Advanced Discrete Simulation (PADS)

Conference Organizing

- Simulation Education Track Chair, Winter Simulation Conference, 2019, 2021-2022
- Proceedings Chair, ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (PADS), 2021
- Tutorials Chair, Spring Simulation Conference, 2019-2020

Service in Professional Organizations

- Treasurer, IEEE Hampton Roads Section, 2020-2021.
- Educational Activities Officer, IEEE Hampton Roads Section, 2017-2021.

Awards and Honors

- Teaching and Research Assistantship, Old Dominion University, 2008-Summer 2012
- Faculty Award in Modeling, Simulation and Visualization Engineering, Old Dominion University, April 2012

- Graduate Student Travel Award, Old Dominion University, November 2010

Community Engagement

- Organized STEAM on Spectrum – an inclusive event for children on the autism spectrum and their families to expose them to Science, Technology, Engineering, Art, and Math (STEAM) principles through accessible and inclusive activities (2018-2019).
- Organized Night on Spectrum – a networking event for caregivers of children diagnosed with autism. During the event, the children explored STEAM activities under the supervision of ABA therapists and special education students. At the same time, caregivers were provided respite and opportunities to explore resources available in the community (2019).
- Organized STEAMclusive – a month-long program with weekly meetings for children of all abilities, including those diagnosed with autism spectrum disorder, to develop skills needed in STEAM careers such as teamwork, listening, planning, and sharing ideas (2021).
- Coorganized [“The Hackening”](#) – a community event to facilitate hands-on learning through challenges across various cyber disciplines, including data engineering, validation, and security (2021).
- Led the development of inclusive display aids for a touch tour at the Mariner's Museum in Newport News, VA. The display aids were intended to convey information about the evolution of ships and boats to people with low and no vision (2022).
- Co-founder and Vice-President of the Board: Teach Me How Foundation Inc. This non-profit organization helps individuals learn how to access the environment in a way that is effective and efficient for them. It provides the assistance and the educational tools they need to learn and grow at school, home, and work. The goal is to set individuals with differing abilities to achieve their goals and provide a strong start toward an independent and fulfilled life (2022).