



RICE KEN KENNEDY
INSTITUTE

Rice University Ken Kennedy Institute

Annual Report January 1 – December 31, 2020

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Angela Wilkins, Executive Director (April – December 2020)

Jan E. Odegard, Past Executive Director (January – April 2020)

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1. Executive Summary

2020 was another dynamic and successful year for the Ken Kennedy Institute, but also a very unique year going virtual in March 2020 due to the coronavirus (COVID-19) global pandemic. Throughout the year, the Institute continued to develop collaborative efforts across Rice and the Houston computing, data science, and information technology community.

The Ken Kennedy Institute brings together the Rice community to collaboratively solve critical global challenges by fostering innovations in computing and harnessing the transformative power of data. The Institute creates a culture for data and computational endeavors to succeed. Our goals for 2020 were multifaceted:

- Enable faculty to take their research to the next level
- Partner with universities, Texas Medical Center (TMC), and industry on transformative efforts
- Help recruit top graduate students and postdocs
- Promote an ecosystem of innovation and entrepreneurship
- Elevate Rice's reputation and expand its reach beyond Texas

Highlights

Some of the key efforts in the last year centered around moving the following goals forward: building partnership with MD Anderson Cancer Center, hiring our first staff member to move collaborations forward, external engagement through conferences and webinars, and providing fellowships and seed funding.

2. Institute Space and Leadership

The Ken Kennedy Institute is housed in Duncan Hall where it occupies three offices (the 1084-1085 office suite and office 1088). No other space is currently dedicated to or managed by the Institute.

Team

Lydia E. Kavradi, Noah Harding Professor of Computer Science; Professor of Bioengineering, Electrical and Computer Engineering, and Mechanical Engineering (office housed within the CS department in Duncan Hall) is the Director of the Institute.

Angela Wilkins joined the Institute in April 2020 as the Executive Director. She succeeded Jan E. Odegard, who was the Executive Director of the Ken Kennedy Institute for 18 years prior.

The Institute is supported by two professional staff members: Michelle Atkinson, Program Administrator, and Meredith Westover, Administrative Assistant.

Faculty Advisory Committee

The Ken Kennedy Institute's Faculty Advisory Committee was instituted in December 2019. The committee members are:

- Rich Baraniuk, Electrical and Computer Engineering
- Lydia Beaudrot, Biosciences
- Keith Cooper, Computational and Applied Mathematics and Former Co-Director
- Farès el-Dahdah, Humanities Research Center
- Chris Jermaine, Computer Science and Former Co-Director
- Kristen Siebach, Earth, Environmental, and Planetary Sciences
- Chris Tunnell, Physics and Astronomy
- Moshe Vardi, Computer Science and Former Director

External Advisory Board

The Institute formulated an External Advisory Board to identify new ideas and opportunities to elevate the Ken Kennedy Institute and Rice University. The External Advisory Board expands a number of points of views across industries. The board members are:

- Sandy Guitar, Managing Director, HX Venture Fund
- Bill Martin, Global Therapeutic Area Head, Neuroscience, The Janssen Pharmaceutical Companies of Johnson & Johnson

- Kathryn McKinley, Principal Research Scientist, Google
- Emily Reichert, Chief Executive Officer, Greentown Labs
- Jim Ward, Managing Director, Two Sigma Investments

The Future: Ken Kennedy Fellows

Faculty have limited resources to move research forward that does not fit into the typical academic funding process. This hinders innovation that can lead to large inter-institution centers, industry collaborations, and new ventures. We believe there is a need to build a community of data scientists with exceptional data science, machine learning, and AI skills to work in partnership with its world-renowned faculty at Rice to start, enable, and translate data-driven research. The Rice Data Science Initiative brought new faculty to its campus but these faculty are separated by distance in space and departments. This team could act as conduit to bring together the many data science efforts at Rice.

3. Institute Members and Subscribers

The Ken Kennedy Institute is made up of over 200 faculty members and senior researchers at Rice University spanning computer science, mathematics, statistics, engineering, natural sciences, humanities, social sciences, business, architecture, and music. They collaborate in interdisciplinary teams to gather and interpret data and to develop solutions that address urgent problems facing our society. The institute also has 58 associate members who are part of the greater campus population.

During 2020, **membership increased from 185 members to 223 members after an orchestrated effort to teach all relevant faculty at Rice.** In addition to these two communities, approximately 4,000 people subscribe to our mailing lists to receive information about events organized by the Institute.

4. Building External Partnerships

MD Anderson Cancer Center Partnership

The Ken Kennedy Institute initiated a webinar held in July 2020 in collaboration with MDACC (and fellow Rice institutes), where we introduced the MD Anderson's D3CODE efforts to Rice faculty and Rice faculty introduced their research to D3CODE researchers. There is currently an opportunity that involves COVID-19, data science, and machine learning that we are actively pursuing. MD Anderson noted that cancer patients who contracted COVID-19 were at increased risk for hospitalization and death. This led MD Anderson to develop an effort called Data-Driven Determinants for

COVID-19 Oncology Discovery Effort (D3CODE), which is a collection of over 30 COVID-19 related projects approved by leadership. The product of the project is intended to be integrated into patient treatment in the next year.

The Ken Kennedy Institute hosted two virtual matching workshops to initiate potential collaborations between the D3CODE MD Anderson researchers and Rice data science faculty. Additionally, a third day was added to the 2020 Ken Kennedy Institute Data Science Conference for a special collaboration track with the MD Anderson Cancer Center that provided a discussion about the efforts and research goals of each institution.

Data Scientist New Hire

The Ken Kennedy Institute obtained funds from the Rice COVID-19 Research Fund to further promote the Rice/MDACC-D3CODE effort. The Institute will fund a data science fellow in 2021 with the expectation that this person will work on multiple projects in collaboration with proposed and accepted Rice/MDACC-D3CODE projects. The Ken Kennedy Institute will have a call for submissions and will select Rice/MDACC-D3CODE projects that the collaborating data science fellow will work on based on merit and funding potential.

Institute External Memberships

We have joined the Alliance of Artificial Intelligence in Healthcare as a board member in 2020. We see this as a key way to increase the exposure of the institute and Rice. This will provide new access to faculty and students to a network of over 40 exceptional organizations (including startups, big pharma, big tech, etc.). In the case of faculty, we plan to identify potential collaboration opportunities. In the case of students, we see potential internships or career opportunities.

The Future: Expanding Partnerships

We will expand our efforts to develop partnerships with new institutions and industries. Ideally, these partnerships should enable the progress of the research clusters.

5. Internal Engagement and Community Building

The Institute has a number of efforts to create a collaborative and productive culture.

Member Kick-Off Event

In February 2020, the Institute held a member kick-off event to provide the results from the Ken Kennedy Institute feedback survey which was sent to all faculty members of

the Institute and completed by 126, lightning talks highlighting faculty research and initiatives, networking, and a great reception. The kick-off event was attended by 53 members.

Member Community Networking Luncheons

We enable new conversations through our Member Luncheons which provide networking opportunities across departments at Rice to encourage culture and collaboration.

- March 2020:
 - **Anastasios (Tasos) Kyrillidis**, Computer Science, “From zero to optimalab”
- April 2020:
 - **Panel: Phyllis McBride, Carolyn Nichol, Theresa Chatman, Chris Barr, and Krystal Toups**, Office of Research, “Research Development Resources Panel”
- September 2020:
 - **Patricia DeLucia**, Psychological Sciences, “Collision Perception: Theory and Applications”
 - **Christopher Fagundes**, Psychological Sciences, “Loss, Trauma, and Health: Who needs treatment and when?”
- October 2020:
 - **Santiago Segarra**, Electrical and Computer Engineering, “Data Science for Networks: What can Networks do for you?”

Seed Funding

The Institute provides seed funding to encourage interdisciplinary research in data and computation projects. Two of our major efforts have been Enriching Rice through Information Technology and Collaborative Advances in Biomedical Computing. The Institute is working on awarding new seed funding in these efforts as well as humanities in 2021.

- \$60,000 to PI John Mellor-Crummey, Computer Science, for “Toward Performance Tools for Exascale Computing using AMD CPUs and GPUs”, completed December 2020
- \$10,000 awarded to Alida Metcalf, History, and John Mulligan, Center for Research Computing, for “Digital Humanities Research Development Funding”, awarded December 2020

Proposal Development and Support

Institute members receive most of their funding from federal agencies such as the National Science Foundation, the Defense Advanced Research Projects Agency, the Department of Energy's Office of Science, and the National Institutes of Health. In addition to these funding sources, the Institute works closely with members to develop funding opportunities and partnerships with industry and private foundations.

The Ken Kennedy Institute assisted in writing, coordinating, providing feedback, and/or submitting the following major grant proposals:

- The Institute provided support for the proposal "AI Institute: Planning: Wireless Aided Machine Learning for Secure and Responsive Smart Manufacturing", PI Ashutosh Sabharwal, submitted 1/31/2020
- The Institute was actively involved in the proposal "AI Institute: Planning: AI for Mining Large Biomedical Databases", PI Christopher Jermaine, submitted 2/1/2020
- The Institute provided support for the proposal "AI Institute: Planning: AI in Pediatric Healthcare", PI Devika Subramanian, submitted 2/1/2020
- The Institute provided feedback for the proposal "AI Institute: National Institute for AI-Augmented Learning at Scale", PI Richard Baraniuk, November 2020
- The Institute provided feedback for an NSF AI Research Institute proposal, PI Luay Nakhleh, December 2020

The Future: Research Clusters

To elevate research achievement, our mission has been extended to develop research clusters. These clusters will build collaborative initiatives in the earth sciences, healthcare, and social equity with the possibility of extending to new topics. The clusters will be made up of a diverse group of thought leaders from Rice to lead and support these new initiatives. We will promote ideas and collaborations through conferences, workshops, meetings, and other events. The expected outcome is new grant opportunities, as well as potential centers and initiatives. Today there is significant interest from the faculty in machine learning and artificial intelligence, health, neuro-engineering, data visualization and spatial analysis, resilient infrastructures for cities, and environmental studies.

Shared Computing Infrastructure

Since 2002, the Ken Kennedy Institute has successfully worked with faculty to fund and build Rice's shared cyberinfrastructure. Today, the Institute, in partnership with Rice's Office of Information Technology's (OIT) Center for Research Computing (CRC),

supports the computational research needs of more than 190 faculty members and over 800 users. In any given month, 250 of these users consume significant computing and storage resources.

The Institute could not operate and continue to build upon its shared research computing infrastructure without the technical support of Rice's CRC, the financial support of Rice University, funding from the National Science Foundation (NSF) and the National Institute of Health (NIH), and support by industry partners. While we continue partnering to write infrastructure grant proposals, the competition is becoming increasingly tough with less government funding available. Since 2002, the Institute has helped fund ~\$30M shared computational infrastructure at Rice. This has helped Rice sustain a healthy computational infrastructure, serving as a catalyst for research and maintaining Rice's ability to be competitive for research funding. Ken Kennedy Institute members, Scott Rixner and Farès el-Dahdah, help to gather faculty needs and help the Institute and OIT's CRC plan for the future.

Research Computing Service Center Operation

The Ken Kennedy Institute stopped operational responsibility for the service center for shared high-performance computing infrastructure at Rice in the spring of 2020. Operation of the service center was transitioned to OIT. However, while the Ken Kennedy Institute will not operate the service center, the Institute will continue to represent and support faculty interest in research computing infrastructure and provide leadership for future needs.

6. External Engagement

The Ken Kennedy Institute continues to engage with and support the local community at Rice, in Houston, and beyond with a variety of educational conferences, workshops, and boot camps, public distinguished lectures, and monthly networking opportunities. The Institute's power lies in its ability to build and strengthen relationships at the forefront of intellectual ambitions. Critical to its mission is the Institute's efforts to continue building and maintaining strong relationships across the community at Rice, the Texas Medical Center, and the greater Houston area.

The world's critical challenges require vision and collaboration across departments, institutions, and industries. We believe that the key steps to solving these challenges starts with promoting new conversations and interdisciplinary research in AI and data science across disciplines and industry sectors.

2020 Oil and Gas High Performance Computing Conference (March 2-4, 2020)

The Oil and Gas High Performance Computing Conference is the premier place for the energy industry to engage in conversations about challenges and opportunities in high performance computing, computational science and engineering, machine learning, and data science annually. Attended by more than 500 leaders and experts from the energy industry, academia, national labs, and IT industry, this is a unique opportunity for key stakeholders to engage and network to help advance HPC in the energy industry.

Technology in the Oil and Gas industry is rapidly evolving, allowing ambitious companies to respond more quickly and efficiently to increasing demands. Companies are evaluating their own technological advances and determining their future computing needs. In response to this trend, the theme of the 13th annual Oil and Gas High Performance Computing (HPC) Conference continued to explore how the industry will meet the computing-capacity demand in the next decade. This year's three-day conference, which took place March 2-4, 2020, included five pre-and post-conference workshop sessions, three keynotes, six plenary talks, 20 papers selected from submitted abstracts in four parallel sessions (HPC Standards, Applications & Cloud Usage; Data Science Technology & Applications; HPC Systems & Facilities; and HPC Software Tools & Technologies), and 45 student poster presentations. The annual conference had a record of 638 registered for the conference (up from 630 registrants in 2019), with 517 attendees who picked up their name badge (down from 580 in 2019). The conference attendance was moderately affected by the coronavirus (COVID-19) global pandemic. We had four sponsors and two speakers who were unable to attend due to company policy changes and two speakers who gave their talks remotely. However, overall there was a strong turn-out among registrants. To see the full program, visit <http://rice2020oghpc.rice.edu/program/>.

The conference, hosted annually at Rice University by the Ken Kennedy Institute, is the premier meeting place for the energy industry to engage in conversations about challenges and opportunities in high performance computing, computational science and engineering, machine learning, and data science.

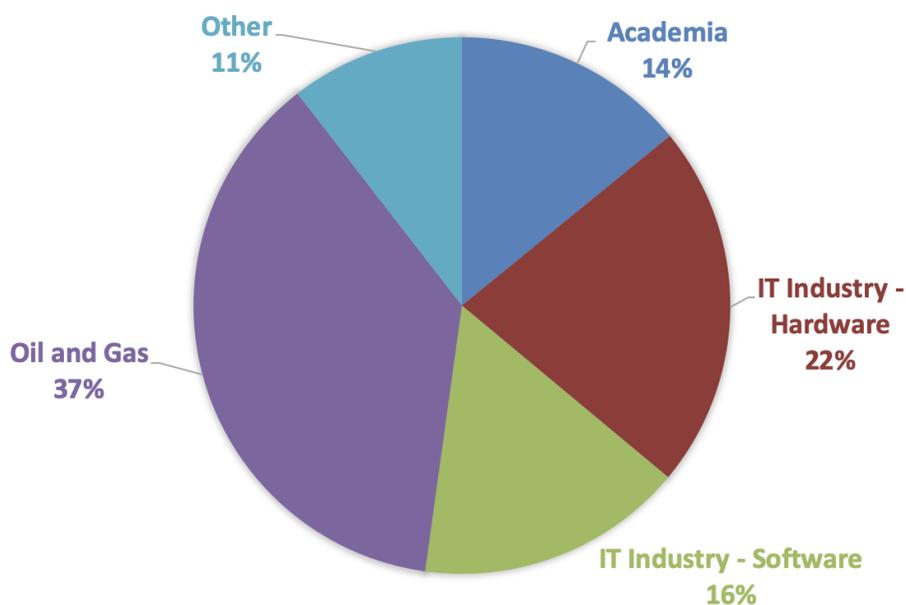
The Oil and Gas HPC Conference continues to demonstrate the value the Ken Kennedy Institute brings to external communities. The conference promotes Rice's leadership role in this space. With attendance 500+, we are maintaining our role as a leader in the HPC and computational science and engineering space. We are a valued partner with a proven commitment to support the needs of the energy industry ecosystem. As a result, we continue to receive strong support with 33 sponsors present (the who's-who across the computing and data hardware and software industry),

including new platinum and gold sponsors (Lambda Labs and Lenovo) and nine new silver and bronze sponsors. We also had nine ecosystem partners and 13 additional interested sponsors that were turned down due to space limitations.

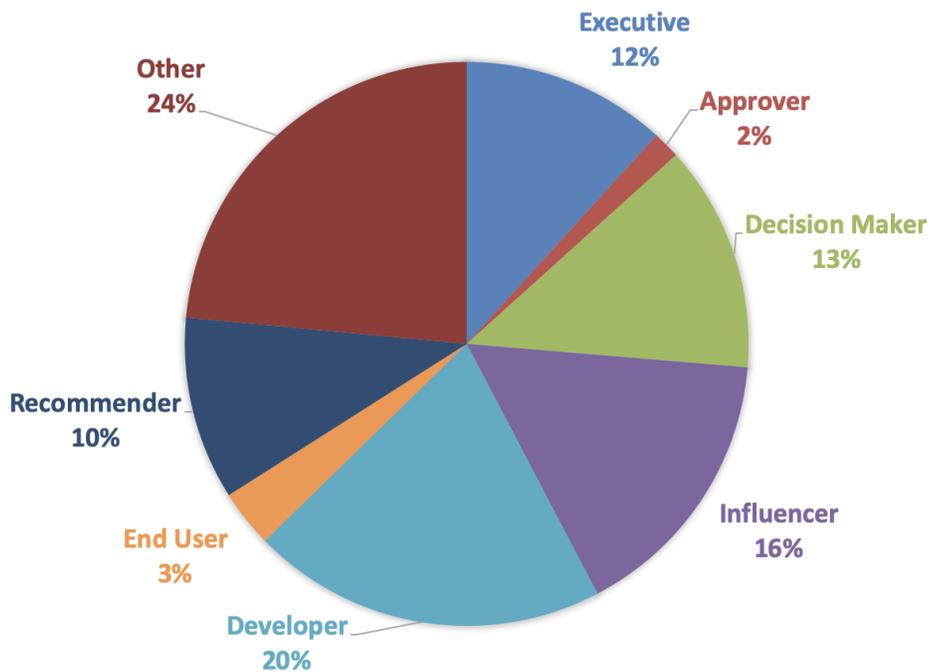
After covering operational costs, funds from the conference will be used to support the Ken Kennedy Institute Computational Science and Engineering graduate recruiting fellowship program. This fellowship program is designed to support the recruitment of outstanding graduate students in fields of computational science and engineering, high performance computing, and data analytics to Rice University.

We look forward to the continued success of the conference. The 14th annual conference will be virtual and is scheduled for March 5, 2021. Next year, the conference will be renamed the Energy High Performance Computing Conference to allow for inclusion of newer aspects of the energy industry.

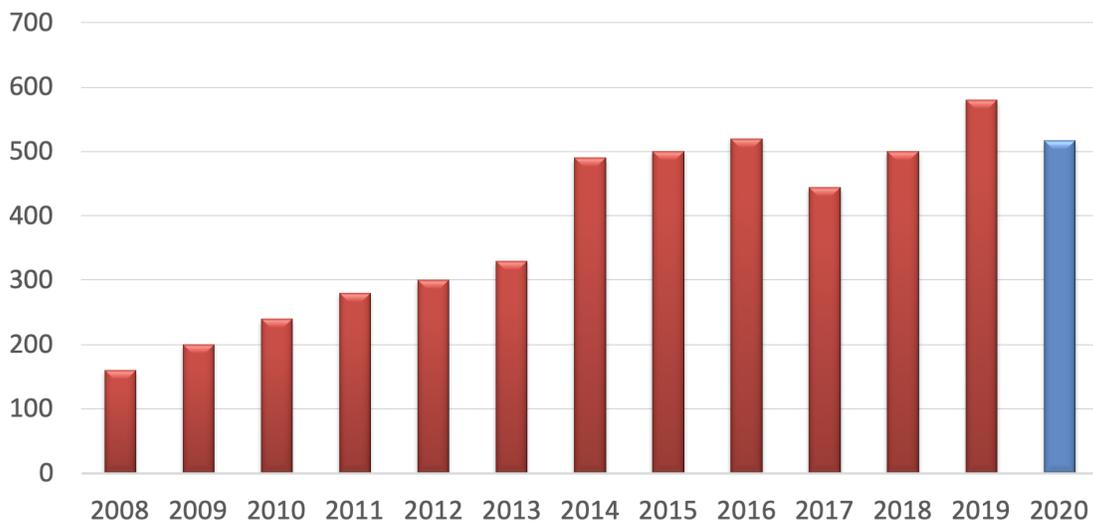
2020 Registration by Industry – OG-HPC Conference



2020 Registration by Role – OG-HPC Conference



Attendance History – OG-HPC Conference



2020 Virtual Ken Kennedy Institute Data Science Conference* (Oct 26-28, 2020)

** Name changed from Rice Data Science Conference in 2020*

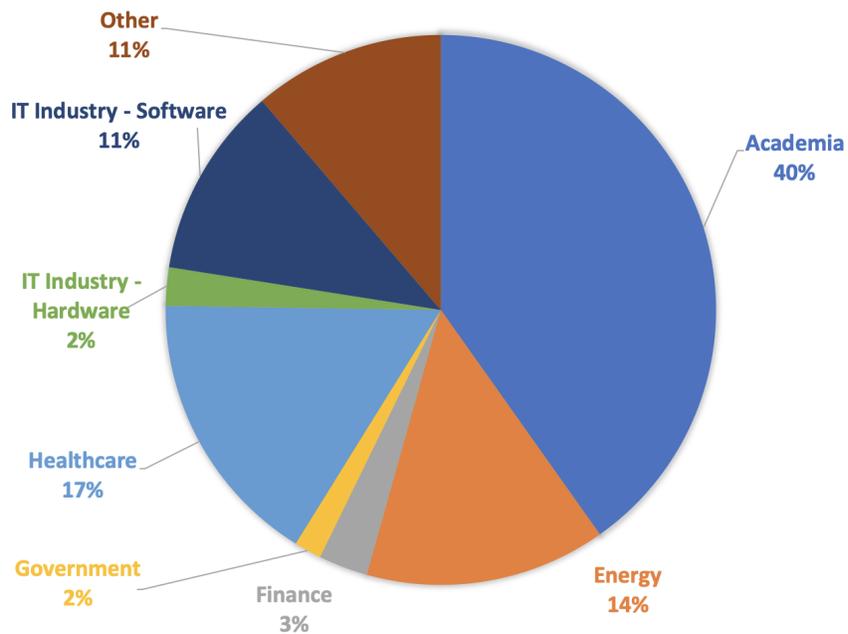
The 4th annual Ken Kennedy Institute Data Science Conference, organized by the Ken Kennedy Institute, was held virtually due to the coronavirus (COVID-19) global pandemic on October 26-28, 2020. For the past four years, the Ken Kennedy Institute Data Science Conference has been interested in exposing how data science can be used to address interesting challenges for translating data to knowledge through advances in data engineering, analytics, machine learning, deep learning, reinforcement learning, and more broadly, artificial intelligence.

This year's virtual conference explored how the pandemic has influenced the use of data as well as the development and application of data science. The three-day conference featured 15 distinguished keynote speakers, 13 technical talks in four parallel sessions (COVID-19, Algorithms & Foundations, Business Impact, and Healthcare), 25 student poster presentations (with 4 winners of the poster competition), 3 sponsors, 5 ecosystem partners, and 311 total attendees. This year an additional day was added for the special collaboration track with the MD Anderson Cancer Center that offered a discussion about the Data-Driven Determinants for COVID-19 Oncology Discovery Effort (D3CODE), a data science initiative to understand cancer in context of the pandemic. The track included 13 rapid fire talks from MD Anderson and Rice University.

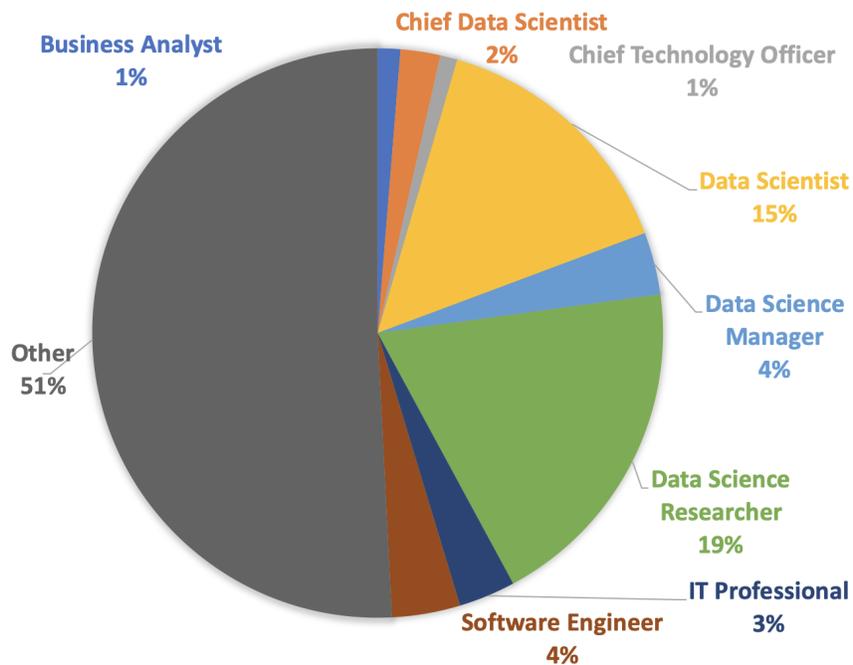
Due to the COVID-19 pandemic, the conference was forced to go virtual this year. We explored a number of virtual conference platforms and networking options, and ultimately decided to go with Brella. The conference platform allowed us to host a virtual site for our presentation sessions, sponsor booths, poster booths, and networking. The platform used matchmaking to encourage networking between attendees. With 263 attendees logging on to Brella, there were 50 meeting requests sent with 30 accepted and 148 chat messages.

The Ken Kennedy Institute at Rice University has the distinct capability to connect people to collaboratively solve critical global challenges by fostering innovations in computing and harnessing the transformative power of data. We are thrilled to put this capability at the service of our regional and national data science community. The Ken Kennedy Institute looks forward to hosting the next Ken Kennedy Institute Data Science Conference in October 2021.

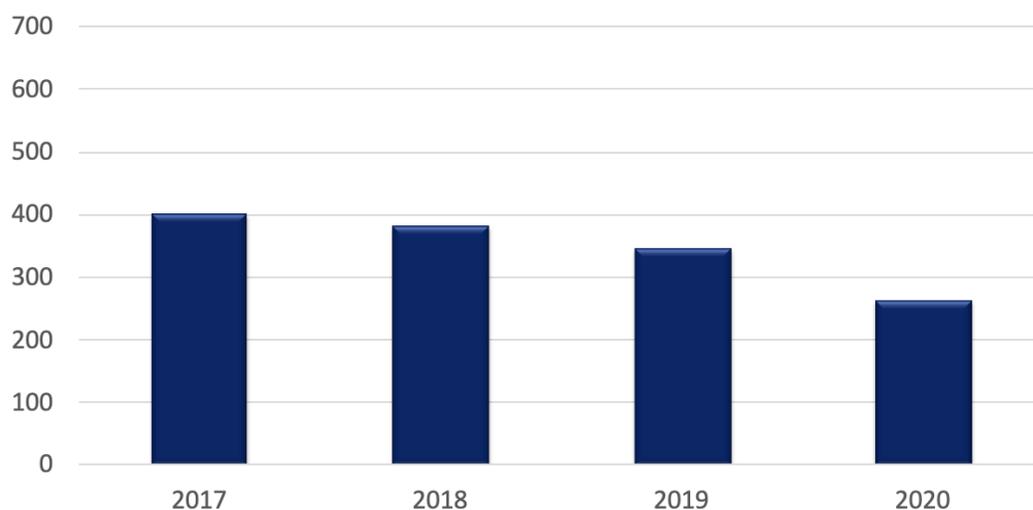
Registration by Industry – Data Science Conference



Registration by Role – Data Science Conference



Attendance History – Data Science Conference



Virtual Machine Learning Boot Camp, 2020 Focus: Machine Learning for Executives (August 6-7, 2020)

This two-day boot camp provided a broad introduction to Machine Learning from an executive perspective. Our goal was to give a manager or a CEO in a field such as medicine, finance, manufacturing, or energy an introduction to the essential concepts behind Machine Learning. Taught by a team of Rice professors in the computational sciences, the Machine Learning Boot Camp integrated lectures describing the basic concepts to state-of-the-art Machine Learning.

The boot camp assumed no specific prerequisites and highlighted a broad set of concepts, ranging from classical supervised and unsupervised methods to modern machine learning approaches, with numerous case studies and applications. Throughout its duration, the workshop provided practical suggestions to executives with dos and don'ts when using Machine Learning in practice.

The two-day boot camp had 28 attendees from 5 universities and 7 companies.

The schedule included Fundamentals of ML with Chris Jermaine, Basic Methods with Santiago Segarra, Deep Learning with Tasos Kyrillidis, and Advanced Deep Learning and RL with Santiago Segarra.

This was the 8th year offering a Data Science/Machine Learning boot camp. The Institute plans to offer this executive-level summary as well as a hands-on Machine Learning Boot Camp in summer of 2021. We also plan to extend these boot camps with topics such as machine learning for the biomedical area.

Ken Kennedy Institute Distinguished Lectures

The Ken Kennedy Institute hosts several lecture series throughout the academic year. Our Distinguished Lecture Series focuses on bringing new ideas and potential collaborators from outside Rice. These lectures are given by well-known speakers that are invited to present talks that allow for discussion, networking, and an opportunity to hear from top executives and leaders from around the globe. These lectures are open to the public with no cost for admission.

- February 12, 2020: **Wolfram Burgard**, Professor of Computer Science and head of the Research Lab for Autonomous Intelligent Systems, University of Freiburg Vice President, Automated Driving Technology, Toyota Research Institute
 - “Probabilistic and Machine Learning Approaches for Autonomous Robots and Automated Driving”
- September 3, 2020: **Jayshree Pandya**, Author of Geopolitics of Cybersecurity
 - “Geopolitics of Cybersecurity”
 - Co-Host: Baker Institute for Public Policy (organized by Moshe Vardi)
 - Part of the Technology, Culture, and Society Lecture Series that focuses on social, political, and legal issues that have emerged from the information revolution that touches most aspects of our daily lives.

Technology Innovation Lecture Series

Technology Innovation Lecture Series is sponsored jointly by the Ken Kennedy Institute and the Liu Idea Lab for Innovation and Entrepreneurship (Lilie).

- February 26, 2020: **Brent Hecht**, Assistant Professor, Northwestern Director of Applied Science, Microsoft
 - “The Origins, Present, & Future of Algorithmic Bias”
- September 23, 2020: **Sunil Nagaraj**, Founding and Managing Partner of Ubiquity Ventures
 - “Why venture capitalists are investing in ‘software beyond the screen’”
 - We brought in Sunil as a deep technology investor to speak on venture and investing in software. Sunil participated in office hours and spoke directly with students and faculty on their entrepreneurial pursuits.

The Future: Innovation Fellows

To extend our mission, we propose the creation of an Innovation Fellows Program in collaboration with the Lilie. This will be a training program that focuses on commercializing their research from Rice University. Graduate students and postdocs

will be funded for a period of one to two years to focus on commercializing research with personalized mentorship.

Data Science Coast to Coast Seminar Series

The Ken Kennedy Institute created the Data Science Coast to Coast (DS C2C) Seminar Series in coalition with five other academic data science institutes including NYU Center for Data Science, Ken Kennedy Institute at Rice University, Stanford Data Science, Berkeley Institute for Data Science, Michigan Institute for Data Science, and the eScience Institute at University of Washington. The goal is to provide a unique opportunity to foster a broad-reaching data science community.

In fall 2020, the series featured important figures in data science who provided insight on the transformative use of data science in traditional research disciplines, future breakthroughs in data science research, data science entrepreneurship, and advocacy and national policies for a data-enabled and just society. Speakers throughout the spring of 2021 will include faculty members and postdoctoral fellows at the six host universities whose research spans the theory and methodology of data science, and their application in arts and humanities, engineering, biomedical, natural, physical and social sciences.

- October 21, 2020: **Dr. Talitha Washington**, Director, Atlanta University Center Data Science Initiative; Professor of Mathematics, Clark Atlanta University; Affiliate Faculty, Morehouse College, Morehouse School of Medicine, and Spelman College
 - “Why We Can’t Wait: Using Social Justice to Transform Data Science”
- November 10, 2020: **Dr. Alex Szalay**, Bloomberg Distinguished Professor and Professor in the Department of Computer Science; Director, Institute for Data Intensive Science at Johns Hopkins University
 - “From Sky Surveys to Cancer: Spatial Data Everywhere”
- December 15, 2020: **Dr. Jeanne Holm**, Deputy Mayor for Budget and Innovation, City of Los Angeles
 - “Using Data to Improve Equity”

Co-Hosted/Sponsored Webinars

- July 8, 2020: **Transdisciplinary Research: Biomedical Imaging Webinar**
 - Event organized and hosted by ENRICH, IBB, Ken Kennedy Institute, and SCI
 - In collaboration with MD Anderson’s Department of Imaging Physics
 - Over 150 attendees

- July 17, 2020: **Coronavirus International Research Team (COV-IRT) Symposium on Cancer Research**
 - Co-Sponsored with Rice University and COV-IRT
 - Over 700 registered, Angela Wilkins assisted with facilitation
- July 20, 2020: **Transdisciplinary Research: Data Science in Cancer**
 - Event organized and hosted by ENRICH, IBB, Ken Kennedy Institute, and SCI
 - In collaboration with MD Anderson's Department of Imaging Physics
 - Over 66 attendees, Angela Wilkins acted as moderator
- July 29, 2020: **Transdisciplinary Research: Biomedical Imaging Webinar**
 - Event organized and hosted by ENRICH, IBB, Ken Kennedy Institute, and SCI
 - In collaboration with MD Anderson's Department of Imaging Physics
 - Over 34 attendees
- September 1, 2020: **Liu Distinguished Visitor Series, Kai-Fu Lee**
 - Event organized and hosted by Lilie, Ken Kennedy Institute, Liu Distinguished Visitor Series, Chao Center for Asian Studies
- November 4, 2020: **Liu Distinguished Visitor Series, Davy Wang** presents "The Future of Cloud Computing"
 - Event organized and hosted by Lilie, Ken Kennedy Institute, Liu Distinguished Visitor Series, Chao Center for Asian Studies

Other Institute Events

- January 13, 2020: **Moshe Y. Vardi**, University Professor, Karen Ostrum George Distinguished Service Professor in Computational Engineering
 - "Fireside Chat with Moshe Vardi" – The Office of Research hosted the celebration of Moshe Vardi's 19 years of leadership of the Ken Kennedy Institute
- May 1, 2020: **Jan Odegard**, Executive Director, Ken Kennedy Institute
 - "Celebration and Fireside Chat with Jan Odegard" – The Ken Kennedy Institute hosted the virtual celebration of Jan Odegard's 18 years of leadership of the Ken Kennedy Institute and his moving on to the Ion

Institute Sponsorship

- October 5-November 16, 2020: **Technology, Culture, and Society in the Age of COVID-19**
 - Glasscock short course offering, co-sponsored by Ken Kennedy Institute
- October 23, 2020: **WiDS (Women in Data Science) Houston 2020**
 - Sponsored by Arundo Analytics and the Ken Kennedy Institute

- Promoted with the 2020 Ken Kennedy Institute Data Science Conference
- December 10-11, 2020: **Society of HPC Professionals Annual Meeting**
 - Ken Kennedy Institute was one of the sponsors

7. Graduate Student Excellence and Education

With the support of industry and the Oil and Gas High Performance Computing Conference, the Ken Kennedy Institute has awarded more than \$1.3 million to 160 students since 2001.

Ken Kennedy Institute Graduate Fellowships: \$50,000 Awarded

The Ken Kennedy Institute's annual graduate fellowship program has awarded \$50,000 to seven Rice University graduate students in five departments.

Recipients use fellowship awards to further research pursuits, attend conferences, travel and develop networking relationships in industry. Past recipients have spent summers as research interns with sponsoring companies.

The 2020-21 graduate fellowships are supported by BP, ExxonMobil, Schlumberger, the Oil and Gas High Performance Computing Conference, and the Andrew Ladd and Ken Kennedy-Cray endowments.

- Alejandro Diaz, Computational and Applied Mathematics: BP, \$7,500
- Boning Li, Electrical and Computer Engineering: Ken Kennedy-Cray, \$7,500
- Huiming Lin, Statistics: OG-HPC Conference, \$7,500
- Tharun Medini, Electrical and Computer Engineering: BP, \$7,500
- Thomas (Mitch) Roddenberry, Electrical and Computer Engineering: ExxonMobil, \$7,500
- Ivan Rosa de Siqueira, Chemical and Biomolecular Engineering: Schlumberger, \$7,500
- Jiarong Xing, Computer Science: Andrew Ladd, \$5,000



Alejandro Diaz
BP



Boning Li
Ken Kennedy - Cray



Huiming Lin
OG-HPC Conference



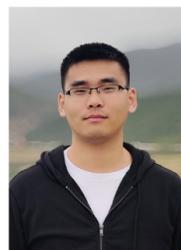
Tharun Medini
BP



**Thomas (Mitch)
Roddenberry**
ExxonMobil



Ivan Rosa de Siqueira
Schlumberger



Jiarong Xing
Andrew Ladd

Ken Kennedy Institute Computational Science and Engineering Recruiting Fellowships: \$135,000 Awarded

The Institute continued to expand its recruiting fellowship program by offering four-year supplemental fellowships to nine graduate students at Rice University totaling \$135,000.

The fellowships are funded by the Ken Kennedy Institute, through its annual Oil and Gas High Performance Computing Conference, and matched by the nominating departments. The goal of the program is to attract outstanding graduate students to Rice in the fields of computational science and engineering, high performance computing and data analytics, with special consideration given to students with research interests in the energy industry. Each enhancement fellowship comes with a \$15,000 stipend paid in monthly installments over four years.

In the spring of 2020, the Ken Kennedy Institute made 24 Computational Science and Engineering Fellowship offers to applicants. Of these 24 offers, 9 students accepted. The Institute welcomed these exceptional students to Rice in the fall of 2020.

- Kristen Curry, Computer Science
- Raul Garcia, Computational and Applied Mathematics
- Bryant Jerome, Applied Physics
- Mirae "Sunny" Kim, Computer Science
- Camille Little, Electrical and Computer Engineering

- Naiming “Lucy” Liu, Electrical and Computer Engineering
- Catherine “Anne” Tuppen, Electrical and Computer Engineering
- Cameron Wolfe, Computer Science
- Tiancheng Xu, Computer Science



Kristen Curry
Computer Science



Raul Garcia
CAAM



Bryant Jerome
Applied Physics



Mirae (Sunny) Kim
Computer Science



Camille Little
ECE



Naiming (Lucy) Liu
ECE



Catherine Tuppen
ECE



Cameron Wolfe
Computer Science



Tiancheng Xu
Computer Science

The Future: Expanding Fellowships

Historically, the industry fellowship program has been predominantly energy industry. We would like to expand the fellowship program to include new industries and new internship opportunities. We would also like to establish a network of postdoctoral researchers who will further facilitate the work of research clusters.

8. Rebranding

Updated Mission Statement

“The Ken Kennedy Institute brings together the Rice community to collaboratively solve critical global challenges by fostering innovations in computing and harnessing the transformative power of data.

We enable new conversations, promote interdisciplinary research in AI and data science, develop new technology to serve society, advance the current and future workforce, work closely with industry to bring promising ideas to market, and develop academic, industry, and community partnerships in the computational sciences.”

Ken Kennedy Institute Newsletters

The Institute started monthly member and industry newsletters including a member of the month, upcoming events, community highlights, and other announcements.

Increased Social Media Presence

Enhanced the Institute's and Rice's visibility by actively posting to our Facebook, Instagram, LinkedIn, and Twitter profiles combined with targeted marketing.

Website

The Ken Kennedy Institute went through a complete website overhaul in the summer, transitioning from Drupal 7 to 8. During the transition, the Institute added new material to the website including a Resources page.

Materials

The Institute updated branding with new slide decks and letterhead.