Center for Applied Data Analytics (CADA)

Milestone & Vision Presentation

Presented by Dr. Lily Popova Zhuhadar

March 2025

Topics

Mission of CADA

Aiming to Empower Innovation Through Data

- **Advance** AI & Data Analytics education across disciplines
- **Promote** research excellence among students & faculty
- **Foster** industry and community partnerships
- **Strengthen** WKU's national reputation in AI & Data Analytics

Over the Years
[2015 –2025 Milestones]

Acknowledging Our Foundation & Growth

- Special thanks to **Kirk Atkinson**, Founding Director (2015–2021), for establishing the Center's foundation in research, education, and community engagement.

Our development follows two key phases:

Building the Foundation

(2015 – 2021)

Laying the Groundwork for Impact
(2022 – Today)

Building the Foundation (2015 – 2021)

Official Launch of CADA (2015)

The Center was officially launched on December 14, 2015.

Received a generous $100,000 gift from Ms. Michelle Wells (Yum! Brands, Louisville) with a $50,000 match from Bucks for Brains®—totaling $150,000.

Center's inaugural physical space (2017)

Established the Center's inaugural physical office space on Fountain Square.

Provided Training Workshop (2019)

Basic Excel - ARGI (Dan Cupkovic, Louisville, KY), Jim Lindsey.

Advanced Excel - ARGI (Dan Cupkovic, Louisville, KY), Kirk Atkinson.

Formed Community Partnerships (2019 – 2021)

The Foundry Christian Community Center.

Good Shepherd Clinic.

HOTEL INC.

Kentucky Legal Aid.

TVA – Ft Knox Federal Credit Union.

Laying the Groundwork for Impact (2022 – Today)

1- Business Partnerships

Established Business Partnerships with Industry Leaders to support data analytics training and innovation:

- SAS
- JMP
- Altair
- KNIME
- INFORMS

2- Institutional Growth and Impact (2023 – Today)

Expanded student funding opportunities by prioritizing grant development and aligning resources with high-impact experiential learning.

Launched WKU's first faculty externship in collaboration with the Arts of Kentucky nonprofit, providing unique professional development opportunities.

The Center's second physical location in Grise Hall (Room 128) accommodated growing operations and outreach.

3- Cross-Center and Lab Collaborations with WKU Directors (2023 – Today)

CADA has initiated efforts to expand interdisciplinary research by collaborating on external grants with the following WKU Center/Lab Directors and research leaders:

Kirolos Haleem, Founding Director, Center for Transportation Research.

Farhad Ashrafzadeh, Founding Director of the Center for Energy Systems.

Katrina Burch, Director, Work-Life Lab.

Jenni Teeters, Director, Technology Enhancing Community Health Lab.

These collaborations aim to leverage shared expertise in transportation, energy, workforce wellbeing, and health technology to pursue high-impact, externally funded research initiatives.

4- Organizational Partnership Collaborations (2023 – Today)

Forged organizational collaborations through external grants and strategic partnerships with Ogden College and the CHHS:

- Public Lands Service Coalition to expand civic engagement and workforce development initiatives.
- Kentucky Mesonet Center: Studying the impact of weather patterns on driver behavior using high-resolution environmental data.
- Kentucky Transportation Cabinet: Collaborating to enhance road safety through the testing of innovative roadway configurations, including the integration of connected and autonomous vehicles.
- National Corvette Museum: Partnering on driver education programs, safety research, and the exploration of autonomous vehicle scenarios.
- WKU Innovation Campus: Advancing research on driver behavior and cultivating strategic partnerships with technology companies.

1- Partnerships

Established Business Partnerships with Industry Leaders to support data analytics training and innovation

- **SAS**
- **Altair**
- **KNIME**
- **INFORMS**

2- Institutional Growth & Impact

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Data Literacy and Analytics Training Sessions Delivered:

CADA Empowered **1,500+ Professionals** and **Students** Through **25+** Data Literacy and Analytics Training Sessions

2024: WKU Data Analytics Awareness Webinar Series with Altair

- Demystifying Data Analytics
- How to Accelerate AI Adoption for Industrial Processes
- Unlocking AI/ML Potential for Engineering Designs and Manufacturing

2023: CADA launched a Virtual Summer Enrichment Series for WKU faculty, staff, and graduate students, featuring weekly seminars from June to August

- Enabling Data Science & Analytics - SAS – Lori Downen & Tom Grant
- Longitudinal Data Analysis – Jackie Johnson
- Data Cleaning – Nancy Rausch
- Sentiment Analysis (Text Mining) – Tom Grant
- Designing Effective Online Surveys – Nancy Rausch
- Multilevel Mixed Models – Jackie Johnson
- Exploratory Data Analysis – Tom Grant
- Structural Equation Modeling – Cat Truxillo

2022: 2nd Annual SAS Training Workshops: Delivered across multiple WKU colleges, this series expanded access to analytics training:

- GFCB: SAS Studio, Fraud Detection, R & Python in SAS
- CEBS: SAS Studio, R & Python in SAS, Analyzing Big Data
- Ogden: SAS Studio, R & Python in SAS, Analyzing Big Data
- CHHS: SAS Studio, Analyzing Big Data

2021 Spring Break SAS & JMP Zoom Workshops

- Modeling & Machine Learning in SAS Viya
- JMP Pro for Teachers & Researchers

2019: 1st Annual SAS Training Workshops

Undergraduate Students Supported:

$68,500 in undergraduate grants funding **19 students** through the FUSE program to engage in national and international research projects.

Recent Awardees (2023-2024):

1. **Ryan Spychalski** ($4,500) – Social Media & Mental Health (2024)
2. **Michael Delaney** ($3,500) – Body Fat Prediction Using ML (2024)
3. **Jonathan Roberts** ($4,500) – Diabetes Prediction Modeling (2024)
4. **Lilly Shipley** ($3,500) – Stroke Risk Detection (2024)
5. **Geoffrey Ross** ($3,500) – Diabetes Prediction Modeling (2024)

Previous awardees:

Layla Dalton, Aaron Wallace, Jonah Hathaway, Abbigail Daly, Sarah Shirley, Morgan Lyons, Abigail McGraw, Ian Hamilton, Kyla Scanlon, Kyle Hart, Ryan Boone, Zach Ross, Corey Travis, and Cody Kirk—each awarded $3,500 to support their undergraduate research projects in data analytics.

Graduate Students Supported:

$54,000 in graduate assistantships supporting 7 graduate students in research projects.

Recent Awardee: (2023-2024):

Maria Wells –The Impact of AmeriCorps Members in Ecosystem Management | $6,000 | Q1 Journal Publication

Previous awardees: **Scarlett Marklin** ($18,000), **Ryan Boone** ($6,000), **Tuyen Pham** ($6,000), **Khoa Nguyen** ($6,000), **Chase Bolton** ($6,000), and **Stephen Guffey** ($6,000).

Grant Submissions & Funding Status:

Through strategic grant writing efforts, CADA has secured funding for impactful projects and continues to seek opportunities to expand its reach and resources.

Recent Proposals (2023-2024):

- **WKU TOP Grant** – $100,000 (2025–2027) – Funded.
- **WKU Sisterhood Grant** – $60,000 – Finalist but not funded.
- **NSF MRI Grant** – $1.2M (2025–2028) – Under Review. This proposal seeks funding to enhance driver behavior research, develop advanced wildfire training programs, and accelerate innovation in autonomous vehicle technologies. The initiative provides collaborative exposure and impact across key partners such as Kentucky Transportation, National Corvette Museum, Hopkinsville Fire Department, WKU Institute for Rural Health, Kentucky Mesonet, and WKU Innovation Campus.

Previous awarded grants:

- **AmeriCorps & Public Lands Service Coalition Grant** – $156,136 (2022–2024) – Funded.
- **Innovative BINDR** – $14,547 (2022–2026) – Funded.

$126,000

Undergraduate Students Supported

$72,000 awarded in undergraduate research grants, supporting **20 students** through the FUSE program and the Data Science Scholarship to participate in national and international conferences.

Recent Awardees (2024-2025) – **$23,000**

1. **Ryan Spychalski** ($4,500) – Social Media & Mental Health (2025) + ($1,800) Scholarship
1. **Jenna Wells** ($1,700) Scholarship – Student Retention
2. **Michael Delaney** ($3,500) – Body Fat Prediction Using ML (2025)
3. **Jonathan Roberts** ($4,500) – Diabetes Prediction Modeling (2024)
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Previous awardees: Layla Dalton, Aaron Wallace, Jonah Hathaway, Abbigail Daly, Sarah Shirley, Morgan Lyons, Abigail McGraw, Ian Hamilton, Kyla Scanlon, Kyle Hart, Ryan Boone, Zach Ross, Corey Travis, and Cody Kirk—each awarded $3,500 to support their undergraduate research projects in data analytics.

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Previous awarded grants:

- **AmeriCorps & Public Lands Service Coalition Grant** – $156,136 (2022–2024) – Funded. (GFCB portion approximately $42,000, supporting faculty stipends, course buyout, and F&A costs.)
- **Innovative BINDR –** $14,547 (2022–2026) – Funded.

~$280,000

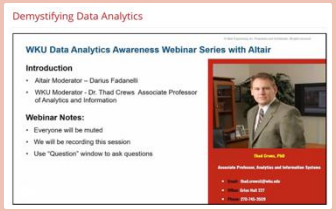
Trough Business Partnerships

CADA Empowered 1,500+ Professionals and Students Through 25+ Data Literacy and Analytics Training Sessions

Analytics Training Sessions

2024 – WKU Data Analytics Awareness Webinar Series with Altair

- Demystifying Data Analytics
- How to Accelerate AI Adoption for Industrial Processes
- Unlocking AI/ML Potential for Manufacturing



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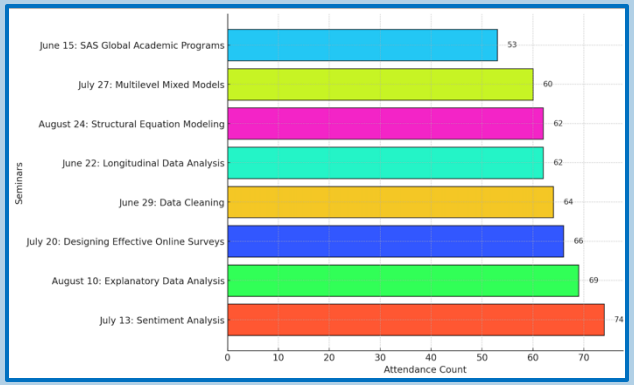

- The chart highlights attendance for the 2024 seminars held from June to August.
- Sentiment Analysis recorded the highest attendance with 74 participants, while SAS Global Academic Programs had the lowest at 53.
- Other popular sessions included Explanatory Data Analysis (69 attendees) and Designing Effective Online Surveys (66 attendees), showcasing a strong interest in practical and applied data analytics skills.

2022 – 2nd Annual SAS Training Workshops

2nd Annual SAS Training Workshops: Delivered across multiple WKU colleges, this series expanded access to analytics training:

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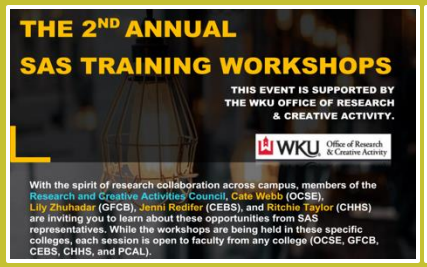
- SAS Studio
- SAS Viya



2023–2024 Highlights

Scaling Innovation & Outreach

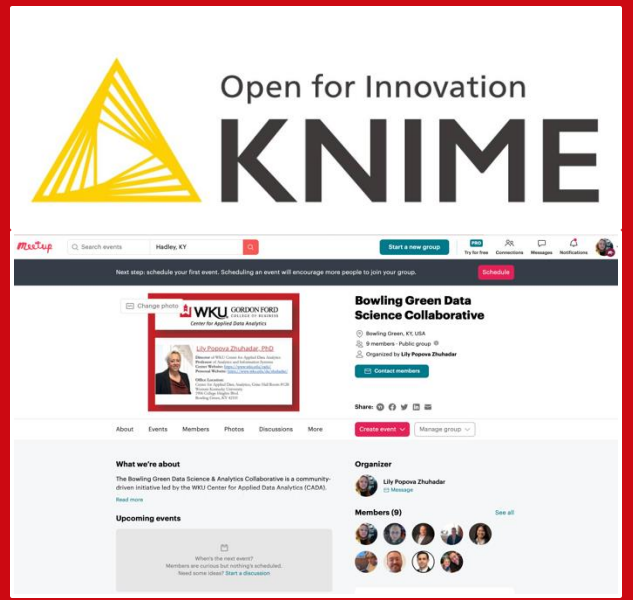
1. **Secured** $23,000 in student research grant funding, supporting 5 out of 11 competitive student proposals. While all 11 proposals were accepted, limited funding allowed awards to be issued to only five students.
2. **Hosted** the SAS Summer Virtual Enrichment Series and Altair Webinars, providing hands-on training in cutting-edge analytics tools to **over 600** participants, including students, faculty, and professionals.
3. **Launched** the official CADA website, serving as a central hub for showcasing initiatives, sharing resources, and promoting opportunities in data analytics and applied research.
4. **Developed** and **published** the CADA Fund Bylaws and submission process, formalizing a $6,000 annual allocation supported by a growing endowment to sustain innovation and student engagement.
5. **Established** a strategic partnership with KNIME, expanding access to professional training, collaborative research, and open-source data science platforms.
6. **Co-developed** a $1.2M NSF MRI Proposal (currently under review) to support advancements in autonomous vehicle systems, wildfire training simulations, and driver behavior analytics.

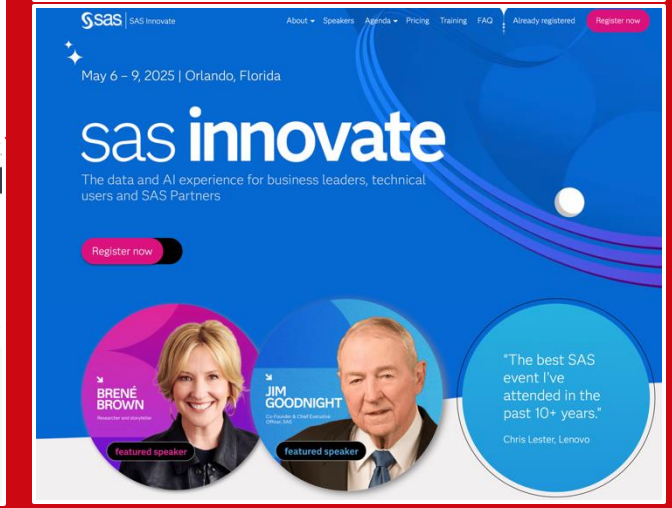
RDS-2000 Driving Simulator

This Year
So Far | 2025

Regional Hub for Data Analytics and Innovation

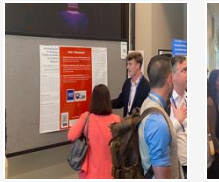
- Mentoring 2 students presenting at Posters @ the Capitol – March 6, 2025
- Mentoring 8 students for the WKU Student Scholar Showcase – April 5, 2025
- Accompanying 5 students to the 2025 INFORMS Analytics Conference – April 6–8, 2025
- Ongoing collaboration with SAS – Presenting at SAS Innovate roundtable on Ethical Challenges in Machine Learning & AI – May 6–9, 2025
- Hosting KNIME Event – Fall 2025



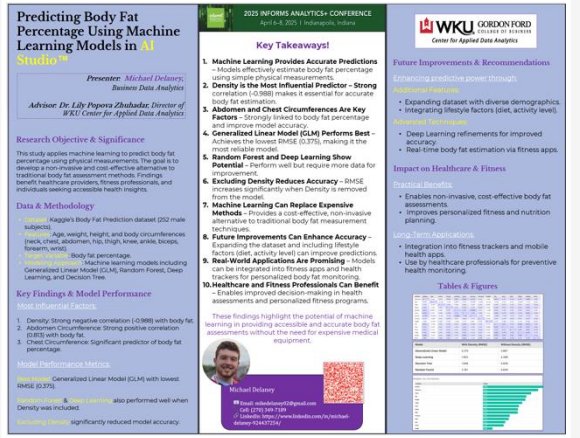


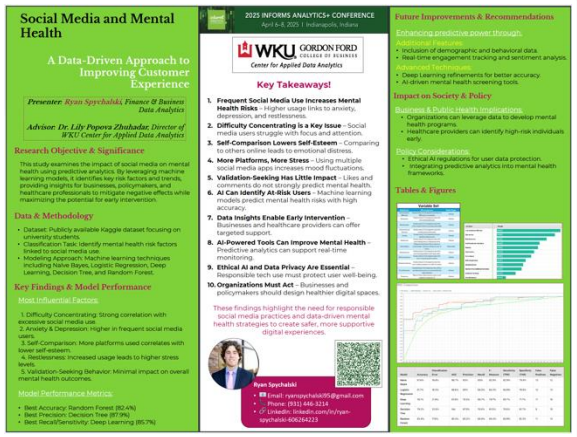
Grant Impact - Students Presented at National & International Conferences

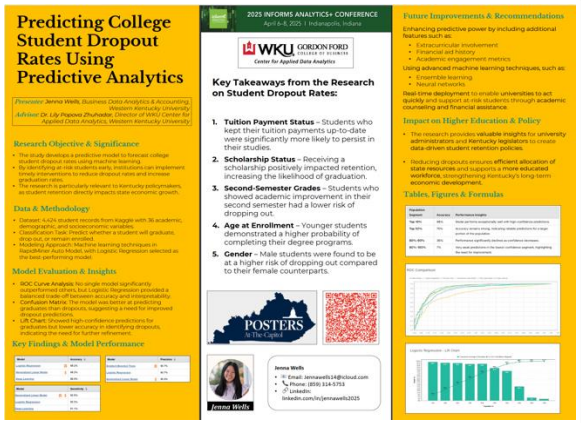
2023-2024

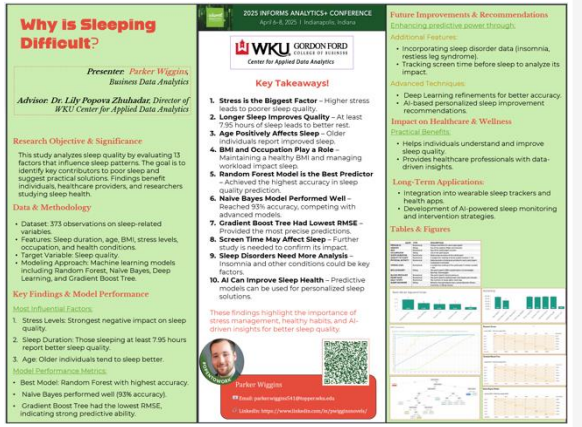


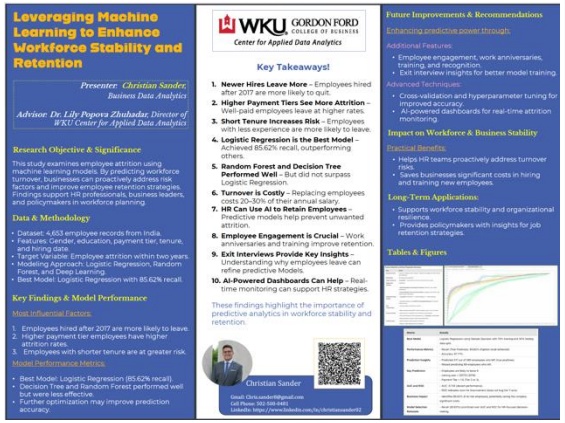
2024 -2025

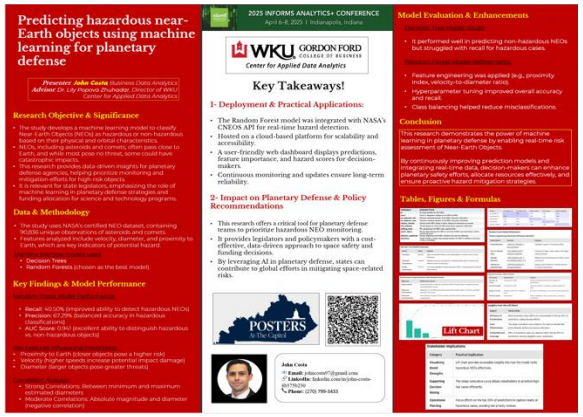












Plans for Next Year | 2026

Strategic Initiatives & Future Plans

- **Proposing** the launch of a CAP-Essentials Certification Preparation Course in collaboration with INFORMS
  - CAP-Essentials (CAP-E): Early-career certification launching Spring 2025
  - CAP-Pro (CAP-P): Mid-career certification launching Late 2025
  - CAP-Expert (CAP-X): Advanced-level certification launched in Early 2025
- Proposing to host the AI & Data Analytics Summit – Spring 2026
- Resubmitting NSF proposals to strengthen research capacity and funding
- Expanding industry-sponsored projects to provide real-world experience for students
- Deepening AI literacy initiatives across K–12 and higher education through targeted outreach and training

Certified Analytics Professional

Looking Ahead to 2028

Certified Analytics Professional

Three-Year Vision

- **Curriculum Integration**: **CAP** **Essential**, **Professional**, and **Expert**
- **Regional Leadership**: **Annual WKU AI & Analytics Summit**
- **Sustainable Growth**: Annual funding > **$250,000**
- **Industry Pipeline**: **20+ companies offering internships**
- **National Recognition**: **Top** **Applied AI & Analytics Center**

CADA's Impact at a Glance

- **Workshops Delivered**: **Over 25** sessions, **1,500+ participants**
- **Grants Submitted: 25+** minor & major grant proposals
- **Total Research Funding Awarded: $280,000**
- **Total Student Funding Awarded** : **$126,000**
- **Partners:** Formed strategic partnerships with the following people/organizations to advance innovation, public service, community development, and experiential learning:
  - **Companies**: SAS, JMP, Altair, KNIME, and INFORMS
  - **WKU Center/Lab Directors:**
    - Julia Roberts (Gifted Studies Director)
    - Jerry Brotzge (Kentucky Mesonet Director)
    - Kirolos Haleem (Founding Director of Center for Transportation Research)
    - Farhad Ashrafzadeh (Founding Director of the Center for Energy Systems)
    - Katrina Burch, (Director of the Work-Life Lab)
    - Jenni Teeters (Director of Technology Enhancing Community Health Lab)
  - **Organizations**: Public Lands Service Coalition, AmeriCorps, Kentucky Mesonet (a division of the Kentucky Climate Center), Kentucky Transportation Cabinet, National Corvette Museum, and WKU Innovation Campus.

Thank you

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