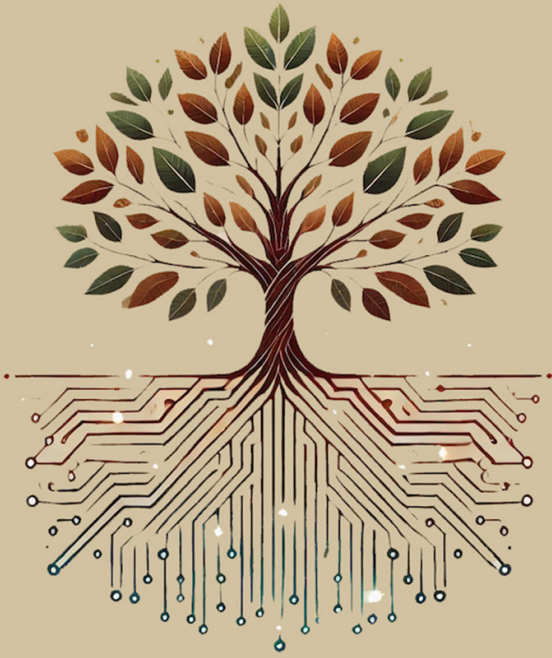


2024-25
Annual Impact Report



Institute for Informatics and Applied Technology

*Interdisciplinary Informatics and
Responsible AI for the Common Good*



TABLE OF CONTENTS

Beginnings.....	1
About Us.....	2-3
Transformative Learning.....	4-5
Interdisciplinary Research....	6-7
Collaborative Innovation.....	8-9
Home in Herak.....	10-11
What's Next.....	12-13

“We are thrilled to welcome Dr. Yang to Gonzaga University. His expertise and leadership will be instrumental in advancing our Jesuit vision and positioning Gonzaga at the forefront of applied technology education, with a particular focus on ethical considerations.”

- *Interim Provost Mia Bertagnoli, Ph.D.*

About Dr Yang

Dr. Shanchieh Jay Yang, an esteemed scholar and leader in the fields of artificial intelligence (AI) and cybersecurity, joined the Gonzaga community in August, 2024, as the Inaugural David and Cathleen Reisenauer Family Director of the Institute for Informatics and Applied Technology.

Yang came to Gonzaga from the Rochester Institute of Technology, where he served as Director of Research at the Global Cybersecurity Institute and department head of Computer Engineering. With a Ph.D. in electrical and computer engineering from the University of Texas at Austin, Yang has an extensive background in statistical models, computer networks, machine learning and AI. Throughout his career, he has contributed numerous research advances and pedagogical innovations on the intersection between AI and cybersecurity, among other interdisciplinary discoveries.





I joined Gonzaga as Inaugural David & Cathleen Reisenauer Family Director of Gonzaga's Institute for Informatics and Applied Technology to transform informatics education in the age of AI.

The institute's unique approach brings together professional engineers with interdisciplinary faculty and students to tackle real-world challenges with no clear answers. The HACLab embeds industry partners directly into our collaborative innovation and learning process, moving at technology's speed so education gets ahead of real-world challenges rather than lagging behind.

Gonzaga provides the perfect environment for this vision. The University's size enables nimbleness, and with President Passerini ushering in a new era, we're uniquely positioned to re-imagine the future. I'm working to transform how faculty approach research and teaching in the AI era—ensuring Jesuit values and industry voices shape academic conversations. This prepares students for the challenges we haven't yet imagined. I am proud of the work accomplished in this first year and look forward to continuing this work across the University.

A handwritten signature in black ink, appearing to read 'S. Jay Yang'.

S. Jay Yang, Ph.D.
Reisenauer Family Director



From left to right: Jay Yang, Yanxia Wu, Amy Hyde, Christopher Lopes. Photo by Joshua Garcia

THE TEAM

Joining "Jay" are three full-time members of the Institute's team, bringing together industry expertise from media, finance, civil engineering and higher education.

Amy Hyde

Marketing and Administration Specialist

Amy has led digital product and business transformation initiatives for major American media including AOL, Time Warner and The New York Times. She has developed go-to-market product and communication strategies for innovation centers and organizations in media, advertising and IT research.

Christopher Lopes

AI Engineer

Chris has vast expertise developing web solutions within Microsoft's ecosystem, particularly in the financial sector, where he translated complex systems into thoughtful and efficient digital products. He brings his passion for development along with a dedication to quality and care toward the thoughtful integration of AI into applications.

Yanxia Wu

AI Engineer

Shaped by interdisciplinary training in civil engineering (M.S.) and quantitative geography (Ph.D.) "Wu" is passionate about data in all forms — numbers, language, images and video — with a special interest in uncovering meaningful patterns across temporal, geographic and demographic dimensions.

“Industries like aerospace manufacturing, healthcare, and computer engineering are all central elements of the Inland Northwest economy, and the Institute for Informatics and Applied Technology will create new opportunities for our students to be leaders in high-tech industries for years to come.”

- President Emeritus
Thayne M. McCulloh, D.Phil.

VISION

Gonzaga’s Institute for Informatics and Applied Technology envisions a bold future for higher education—where technical excellence and humanistic insight are inseparable and students across all disciplines are prepared to meet the rapid evolution of data and AI with agility, discernment and purpose.

MISSION

The Institute for Informatics and Applied Technology, guided by Jesuit principles, will establish Gonzaga as the university of choice for interdisciplinary, humanity-centered learning and innovation in informatics.



FOUNDATIONS

Grounded in Jesuit values and a commitment to human-centered innovation, the Institute for Informatics and Applied Technology advances its mission through three foundational elements, which reflect its integrated approach to learning, research, and partnership—each designed to foster responsible technological progress and real-world impact.

TRANSFORMATIVE LEARNING

In collaboration with Gonzaga’s deans, faculty, and staff, the Institute for Informatics is shaping informatics-infused, Jesuit-guided learning experiences—from the core undergraduate curriculum to master’s and professional certificate programs—preparing leaders across disciplines to apply informatics and AI responsibly.

INTERDISCIPLINARY RESEARCH

The Institute is a catalyst for creative, interdisciplinary research that addresses real-world challenges in the development and application of responsible AI and informatics. Emphasizing agile research approaches that keep pace with technological change, the Institute supports faculty and student-led inquiry through mentorship and funding that expand scholarly impact.

COLLABORATIVE INNOVATION

The Institute’s Human-AI Collaboratory (HACLab) fosters solution-focused innovation through partnerships with industry, government, non-profits and educational thought leaders. Working alongside IIAT engineers and Gonzaga students, collaborators engage in creative ideation and development to solve real-world problems and advance the human condition.

FACULTY ENGAGEMENT

Arriving in August 2024, Dr. Yang started with conversation, not technology. Through one-on-ones, workshops, and surveys, he mapped faculty enthusiasm, curiosity, caution and concern. By identifying early adopters, supporting the cautiously curious and engaging skeptics respectfully—while honoring academic autonomy—he positioned the Institute as a trusted resource and catalyst for exploring how informatics and AI could shape each field.

CORE LEARNING OUTCOMES

These early faculty engagement efforts led to a collaboration with Core Director Ann Ciasullo to develop new AI and digital technology focused learning outcomes for Gonzaga's core curriculum courses: COMM 100, PHIL 101 and ENGL 101. The new outcomes address topics such as the responsible use of digital tools, the potential for algorithmic bias, discerning when and how to use AI in writing and literacy practices and the ethical issues concerning reasoning and argumentation in the age of AI. In partnership with Instructional Design & Delivery and Foley Library, the Institute for Informatics developed a summer workshop that brought together more than thirty faculty members to explore the technical foundations of AI and help shape each department's unique approach to these outcomes, which will debut in the Fall semester 2025.

NEW PROGRAM DEVELOPMENT

While Gonzaga's integrative approach to informatics and AI led to the creation of the Institute and a number of key collaborations, it has also revealed the need for entirely new programs and courses. Beginning in Fall 2025, Gonzaga will launch several new offerings, including:

- AI in Leadership Certificate (Center for Lifelong Learning)
- M.S. in Data Science (School of Engineering and Applied Science)

The Institute is also actively assessing additional programs that will position Gonzaga as a leader in interdisciplinary informatics. Current programs under consideration include:

- Cyber Resilience
- Sports Analytics
- Bio/Health Informatics



ZagAI: GONZAGA'S AI-POWERED LEARNING ASSISTANT

As part of its commitment to fostering ethical and innovative uses of emerging technologies, the Institute for Informatics and Applied Technology is piloting ZagAI—a custom-built AI learning assistant designed to support both instructors and students. ZagAI prioritizes data privacy, transparency in AI use, student experience research and trust, aligning with the unique needs of Gonzaga's academic community.

ZagAI is built not just as a tool, but as a platform for responsible innovation. It assists students in navigating complex assignments through techniques like Socratic questioning, encourages deeper reflection, supports faculty in enhancing instruction and serves as a living system for ongoing research into how AI can meaningfully support learning without replacing human insight.

The project is led by English Professor Chase Bollig, MIS Professor Shan Xiao, AI Engineer Chris Lopes and student researcher Izzy Tilles, with an initial product release in mid-July. Students will begin using ZagAI in the second summer session, with formal introduction in ENGL 101 this fall.

ZagAI isn't just about adopting AI—it's about shaping it, together.

APPROACH

The Institute for Informatics and Applied Technology advances knowledge, enhances teaching, and drives economic growth through interdisciplinary research. Supported by government grants, private sponsors and Gonzaga funding, faculty and students explore emerging technologies and their impacts on education, work, society and the human experience. Research initiatives reflect Gonzaga's Jesuit tradition, emphasizing care for the vulnerable, solidarity, and environmental stewardship.

A PHILOSOPHICAL SURVEY OF RESPONSIBLE AI

Principal Investigator: Dr. Anthony Fisher, Philosophy

In the age of AI, universities and industry readily advocate for 'responsible AI'. Google and Microsoft, for example, have responsible AI labs that hold the view that people should develop and deploy AI technologies in a responsible way. However, it is not clear that there is any consensus on what "responsible AI" amounts to. Through surveying the disparate work on responsible AI across fields, from ethical discussions about responsibility in moral theory to the responsible implementations of AI in the commercial market, this research clarifies ambiguities in responsible AI and draws distinctions among senses and kinds of responsibility that carve up the topic in illuminating ways. This work will help shape an actionable responsible AI framework for organizations as society continues to advance and adopt AI technologies. A conference on the ethics of responsible AI will be organized as an opportunity to bring academics from philosophy and computer science together, alongside experts in Industry.

QUANTIFYING HOW VISUAL AND SEMANTIC SIMILARITY INFLUENCE VISUAL SEARCH FOR REAL-WORLD OBJECTS

Principal Investigator: Dr. Doug Addleman, Psychology
IIAT AI Engineer: Yanxia Wu
IIAT Student Researcher: Zobe Murray

This research aims to inform the development of a quantitative tool using machine learning that can assist in identifying visual and semantic similarities between images. For example, searching for a snail might be made more difficult by introducing visually similar distractors like cinnamon rolls or semantically similar ones like seahorses. This approach will inform theories about the role of visual features and semantics in visual attention that will be of interest across a range of fields in cognitive and computer science (visual neuroscience, the development of conceptual knowledge during childhood, computer vision and more).



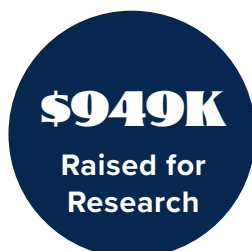
LEADERSHIP FOR AI ADOPTION

Principal Investigator: Nilla Hoxha, Ph.D. Candidate, Leadership Studies
IIAT Mentor: Jay Yang

An investigation into how leadership styles shape the adoption, integration and responsible use of artificial intelligence in organizational settings through the analysis of leadership frameworks such as transformational, servant and transactional leadership in AI implementation.

PROPOSAL STAGE RESEARCH

- Transforming K-12 Education in the AI Era
- Provenance for Retrieval Augmented Generation
- Generative AI Energy Meter
- Turing Test for Decision Making in the AI Era





Gates Foundation AI For Instruction Fellowship

Principal Investigator: Anny Case with Jay Yang

Funded by the Gates Foundation AI For Instruction Fellowship, Gonzaga’s School of Education and IIAT have partnered to explore how K–12 educators can ethically and effectively integrate artificial intelligence into classroom instruction. Rooted in the Gates Foundation’s strategic commitment to academic improvement, equity and charter sector sustainability, the Fellowship program aims to position educators as instructional leaders in the ethical use of AI while enabling cross-sector partnerships to solve real-world challenges in education. In conjunction with the Fellowship training (a "boot camp", monthly coaching, learning labs and capstone showcase), the project’s principal investigators will conduct research to collect and assess participating teachers’ and students’ reflections on the programs intended outcomes. The research findings and lessons learned will be disseminated at the conclusion of the project.



City of Spokane - Smart Intersection and Digital Twins

Principal Investigator: Yanxia Wu with Jay Yang

With pedestrian injuries and fatalities on the rise, the City of Spokane and the Institute for Informatics and Applied Technology are exploring how artificial intelligence can be leveraged to enhance traffic safety and efficiency. This early stage collaboration brings together machine learning researchers, data scientists, city engineers, and law enforcement to test and learn how digital twin technology can improve safety at high-risk intersections.



Photo by Joshua Garcia

Impactful Partnerships

At the Institute for Informatics and Applied Technology (IIAT), innovation happens through collaboration. Partnerships with industry, government, non-profits and other universities push the outer limits of emerging technologies while staying grounded in the IIAT vision for responsible AI and informatics for the benefit of society.

IIAT works with partners who share the belief that technology should serve people. Together, we design projects that challenge assumptions, explore untested possibilities and address the ethical, social and technical questions that shape the future. From AI's environmental impacts to tools that expand educational access, each initiative balances bold exploration with human-centered responsibility.

For Gonzaga students, these collaborations are immersive, real-world learning experiences. Working alongside partners, they tackle complex, open-ended problems that require technical skill, interdisciplinary thinking and a deep awareness of societal impact. This hands-on approach prepares them to lead in shaping technology's role in the world.

IIAT's projects deliver tangible benefits—supporting economic development, addressing social challenges and fostering inclusive technological ecosystems. Guided by Gonzaga's Jesuit values, IIAT unites ambition with accountability, proving that innovation can be both a driver of progress and a force for the common good.

To explore partnership opportunities with IIAT, email informatics@gonzaga.edu.

Value and Responsibility in AI Technologies Conference April 3-4, 2025



Chase Bollig speaks as a panel member during the Value and Responsibility in AI Technologies Conference

Linking value and responsibility to AI is gaining momentum in academia, politics and industry, yet questions about where these principles emerge and how they are recognized need deeper expert focus. This conference gathered scholars from eight universities and technology and legal leaders from Adobe and Google to address ethical challenges and explore solutions for designing responsible, value-driven AI. Twelve Gonzaga students from diverse disciplines also presented their research.

186
REGISTRANTS

30
PRESENTERS

12
STUDENT
PROJECTS



A WHOLE NEW LOOK FOR HERAK

Gonzaga's Plant Services team has been hard at work transforming the ground floor of Herak Center into a dynamic new home for the Institute for Informatics and Applied Technology. The renovated space will feature a new office suite for the Institute and the Human-AI Collaboratory (HACLab)—a flexible, interdisciplinary environment for innovation, exploration and collaboration. The redesigned corridors will include student study and lounge areas, fostering community and connection. Throughout the space, natural elements and open design principles will be integrated to inspire creativity, focus and the human-centered spirit that guides the Institute's work.



A NEW APPROACH TO ADVISORY ENGAGEMENT

The Institute for Informatics and Applied Technology, in collaboration with University Advancement, Jeff Geldien, Ph.D., and Advisory Council Chair Dave Reisenauer, has developed a forward-looking model for advisory engagement—one that may serve as a template for other councils across Gonzaga.

The IIAT Advisory Council is composed of strategic leaders from higher education, technology, energy, consulting and entrepreneurship. Council members serve three-year terms and offer guidance to Dr. Yang, mentorship to students and support to Institute staff as we work together to shape the future of interdisciplinary informatics and responsible AI.

ADVISORY COUNCIL MEMBERS

Dave Reisenauer,
Chair - Nvidia, IBM (retired)

Dave Lubowe,
Ernst & Young

Florence Hudson,
Columbia University

Jennifer Halverson,
Accenture

Keith Lucas,
Author & Entrepreneur

Kevin O'Toole,
Google

Michael Smith,
Carnegie Mellon University

Mike Moniz,
Circadence Corp

Steve Hastings,
Cognitiv

Wayne Manuel,
Avista (Joining Fall 2025)



Advisory Council Chair Dave Reisenauer engaging with students at the Value and Responsibility in AI Conference.



SUPPORT IIAT WORK

OPENING DOORS AND MINDS

From conversations to new carpet, the 2024-2025 academic year literally laid the groundwork for the Institute's programs and research. The second year promises even more opportunity.

PARTNERSHIPS

Through partnerships, IIAT can co-create solutions, deliver tailored workshops and develop projects that serve your organization and strengthen shared commitments to innovation with purpose

GRANTS & FUNDRAISING

Your organization's grants and philanthropy can fuel groundbreaking research, empower students and shape technology for the common good.

MONTHLY GIVING PROGRAM

Automatic monthly gifts are convenient for you and provide IIAT with reliable support year-round.

ASSETS

Gifts of stocks, bonds, and mutual funds.

Your support is appreciated!



EVENTS AND INITIATIVES

Throughout the 2025-2026 academic year, the IIAT will continue to strive toward its mission to position Gonzaga as the university of choice for interdisciplinary, humanity-centered learning and innovation in informatics.

RESPONSIBLE AI

- Defining what "Responsible AI" means in the context of Gonzaga's Jesuit values.
- Developing a framework for implementing and assessing responsible AI in higher education.
- Hosting the 2nd annual Value & Responsibility in AI Conference in April 2026.

TRANSFORMATIVE LEARNING

- Providing all faculty with opportunities to explore how AI and informatics impacts their field of study and how they teach in the era of AI.
- Incorporating AI and Informatics across disciplines through experiential learning, workshops and certificate programs.

INTERDISCIPLINARY RESEARCH

- Funding faculty scholarly activities.
- Winning grants focused on the application of AI technology across industries.
- Leading Jesuit informed research in emerging technology and data science pedagogy.

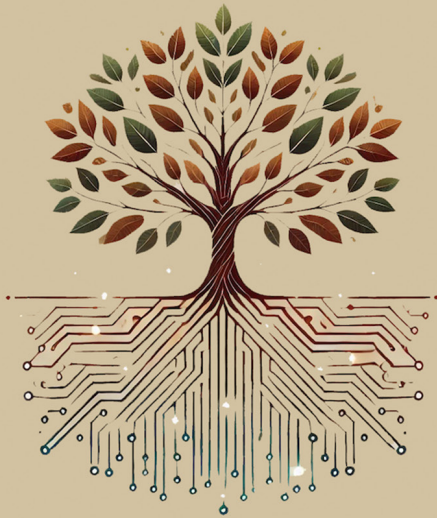
COLLABORATIVE INNOVATION

- HACLab engagements that partner industry with faculty and students to address societies most urgent data and AI challenges.
- Industry-focused interactive workshops to advance the responsible use of AI in service to humanity.



“For it is not knowing much, but realising and relishing things interiorly, that contents and satisfies the soul.”

*St. Ignatius of Loyola,
The Spiritual Exercises*



Sincere gratitude to colleagues across campus, partner scholars and industry experts whose collaboration and insights have been instrumental in shaping the interdisciplinary approach to informatics and artificial intelligence at Gonzaga—an initiative grounded in our commitment to the humanities and the common good.



**Institute for Informatics
and Applied Technology**

502 East Boone Avenue
Spokane, WA 99258-0102
(800) 986.9585 | gonzaga.edu/IIAT