



## **Membership Benefits Frequently Asked Questions (FAQ)**

<http://nsvdi.org>

*CVDI conducts multi-disciplinary, cross-institutional precompetitive research and develops next-generation technologies in data science, big data, analytics, including visual analytics, augmented intelligence, and decision informatics.*

*CVDI's value proposition offers a low cost, low risk venue for the industry to validate the early stage innovation with involvement of major research university faculty, post doctorate scholars and students.*

FAQ VERSION 11

## **WHAT IS CVDI?**

The National Science Foundation (NSF) Center for Visual and Decision Informatics (CVDI) brings a consortium of researchers and students across multiple universities to advance research and innovation in data science, big data, analytics, including visual analytics, augmented intelligence, and decision informatics.

CVDI's mission is to work in partnership with government, industry and academia to research and develop the next-generation technologies in data science, big data, analytics, including visual analytics, augmented intelligence, and decision informatics that enable decision makers to significantly improve the way their organization's information is interpreted and analyzed. Through a unique partnership with our Industry Advisory Board members, our researchers are identifying and addressing state-of-the-art challenges in Big Data, such as event emergence in networked data, mining and visualization of patterns in data streams and cross-enterprise data integration.

The core strengths of CVDI are in the areas of visual analytics, predictive analytics, data cleaning, interactive visualization, AI, machine learning and data summarization methods. CVDI is a part of the [NSF Industry University Cooperative Research Center \(IUCRC\)](#) program that promotes high-quality industry relevant research and direct technology transfer of ideas, research results and technology to U.S. industry.

CVDI was founded in February 2012 by the University of Louisiana at Lafayette and Drexel University. In 2015, the Center added Tampere University, Tampere, Finland as an international research site. In February 2017, CVDI received their Phase II award from NSF funding the center for another 5 years. Joining CVDI with the Phase II award were Stony Brook University and University of Virginia. In addition, the University of North Carolina at Charlotte joined in January 2018. CVDI is one of the largest centers in the NSF IUCRC program.

CVDI is funded by the Industry University Cooperative Research Center program of the National Science Foundation and by membership fees from industry and government affiliates. Additional funding is often realized through industry enhancement projects, competitive state and federal research initiatives and partner universities' matching programs. The Center currently consist of 5 partner universities and 18 industry partners. The 92 researchers and their graduate students have completed 111 industry funded research projects and 204 publications as well as submitted 26 patent applications and 108 invention disclosures. Research funding, over the course of Phase II of the Center covering the period 2017 - 2022 will exceed \$12m.

## **WHAT ARE THE GOALS OF CVDI?**

The CVDI's goals are to:

- (1) Become a world leader in big data and data science by creating exceptional core competencies across multiple areas,

- (2) Create a network of diverse and complementary research sites, both here in the US and abroad, that deliver extensive technical expertise to industrial partners and the research community,
- (3) Accelerate the creation and transfer of technology to industry and commercial products, and
- (4) Attract high quality student talent, and produce future workforce that have broad industrial perspective in their research that has the potential to benefit local and national economy.

*In summary, the CVDI value proposition is to offer a low cost, low risk venue for the industry and government agencies to validate the early stage innovation with involvement of university faculty, post doctorate scholars and students.*

### **WHAT IS AN NSF IUCRC PROGRAM?**

CVDI is a multi-university, industry-sponsored research center established as a NSF IUCRC in February 2012. CVDI is supported by the NSF's Directorate for Computer and Information Science and Engineering.

NSF's Industry University Cooperative Research Center program is an established and proven model for companies to acquire external technologies through open innovation by partnering with universities. An IUCRC is supported through membership fees from industry, grant money from NSF and commitments of participating universities. To industry, government and other organizations with research needs, the NSF IUCRC program provides the means to leverage research and development (R&D) investments with multi-university centers renowned for innovative research capabilities.

The IUCRC program's cooperative model enables the creation of an industry-relevant, pre-competitive research portfolio, via the formation of multi-member, sustained partnerships between industry, academe, and government. NSF supports the development and evolution of IUCRCs by providing a financial and procedural framework for membership and operations, in addition to best practices learned over decades of fostering public/private partnerships that provide significant value to the nation, industry, university faculty and students.

As of today, there are 77 IUCRCs operating in the United States with over 200 university sites across the nation and a handful of international sites in Europe, and Asia. CVDI is one of the few IUCRCs that has an international presence. This international expansion of the IUCRC program offers unique opportunity to ensure US competitiveness in a global economy and allow the development of the next generation workforce that is global in nature and has perspective on socio-economic issues that transcends cultural boundaries. There are more than 2000 students engaged at IUCRCs on a yearly basis. Each year about 1000 students graduate through these IUCRC sites and approximately 30% of these students are hired by the IAB member companies. These numbers demonstrate the strong role that IUCRCs plays in building our nation's workforce.

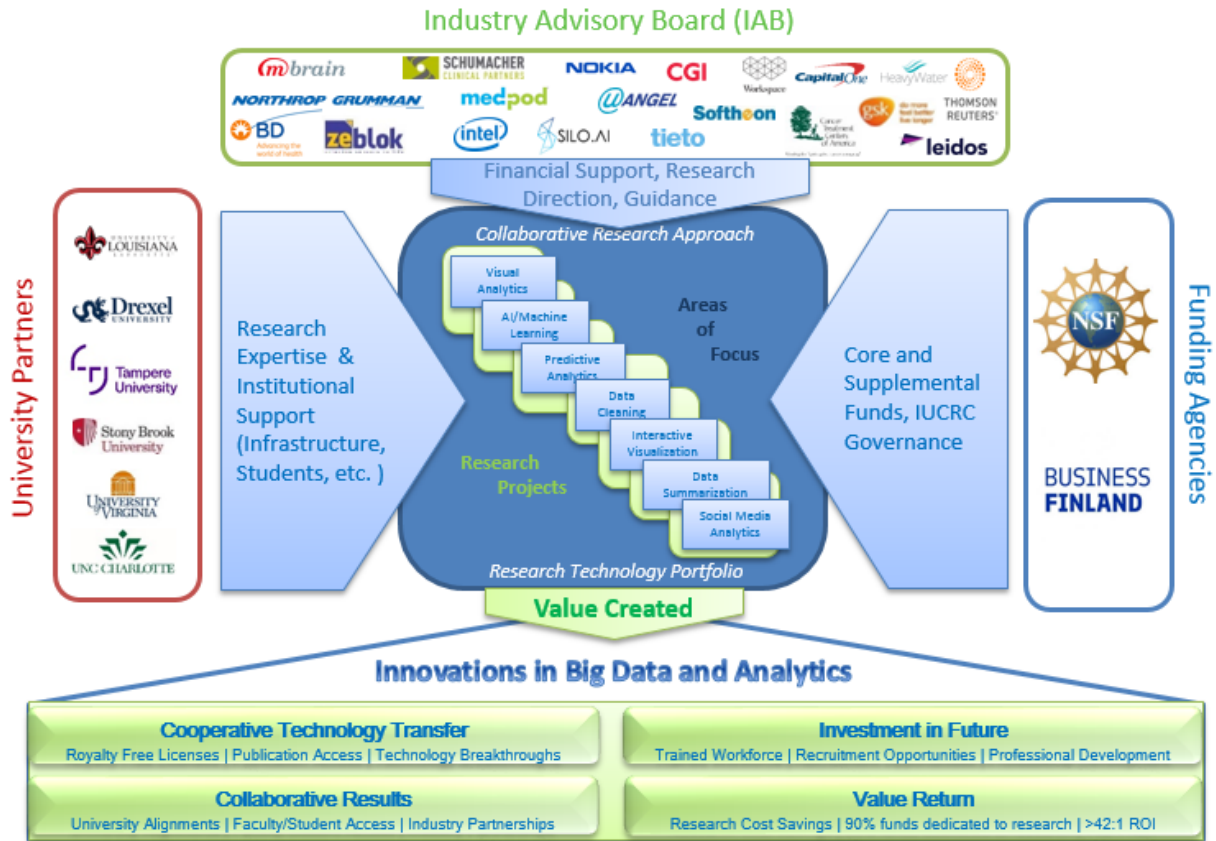
## **WHAT ARE THE BENEFITS OF JOINING AN NSF IUCRC?**

IUCRCs offer a platform for significant leveraging of financial investment to accelerate the knowledge base in emerging technological and manufacturing sectors and develop an industrial savvy workforce to benefit the economy by:

- Leveraging of affiliate investment
- Access to faculty, students, facilities and infrastructure at all Center sites (18 senior faculty per center on average)
- NSF's 40+ years of experience with the IUCRC program
- Access to sector-identified, pre-competitive research
- Precompetitive industry relevant research shaped by members and faculty
- 90% of membership fees go toward research
- Sector networking, to learn from industry peers, competitors, customers and regulators
- Option to expand innovation capacity globally
- Company savings: Lower risks, accelerate competitive R&D and internal cost avoidance
- Early and continual access to the discovery and innovation process as well as its results
- Non-exclusive IP rights to all projects

## **HOW DOES THE CVDI IUCRC PROCESS WORK?**

The research conducted CVDI is done in collaboration with an Industry Advisory Board (IAB) that ensures through the feedback loop and voting process that it aligns with the emerging needs of the consortium and its IAB members.



## WHAT ARE THE RESEARCH FOCUS AREAS OF CVDI?

CVDI brings both synergy and complementary data science and big data research initiatives in the areas of data acquisition and management, analytics, visualization & human interaction, applications to drive innovation in visual and decision informatics. The research topics within the analytics domain include visual analytics, predictive analytics, augmented intelligence, data summarization, deep learning, complex systems analysis, evolutionary optimization, agent-based models and simulation, privacy-preserving learning, and meta-learning. New visualization and human computer interaction topics include interactive visualization, human computer interaction modeling, cognitive assistance, and immersive analytics. Topics in data management include big data platforms, knowledge organization, data fusion and integration, parallel processing of massively large datasets, and green computing. The Center also brings complementary expertise in health informatics, biomedicine, energy, computational law, education, cybersecurity, disaster management, advanced manufacturing, psychology, and environmental science.

## WHAT ARE THE BENEFITS OF JOINING CVDI?

CVDI's value proposition is to offer a low-cost, low-risk venue for its members from industry and government agencies to validate their early stage innovations with the involvement of university faculty, post-doctoral scholars, researchers and students.

Members of the CVDI Industry Advisory Board (IAB) have access to leading-edge developments in data science, big data, analytics, and visual and decision informatics. IAB members guide the direction of the Center's research projects. Members will also have access to the interdisciplinary knowledge base from academic researchers and engage with other industry advisory board members to explore potential opportunities. The following are highlights of membership benefits:

- CVDI provides ***low-cost, low-risk precompetitive research***. A very high percentage of the project funds support research and the Center charges only 10% overhead project funds generated via from membership fees.
- This amounts to 13:1 return-on-investment, for industry members, based on industry funding received through Phase I and 42:1 return-on-investment, if NSF support is counted.
- CVDI generates considerable ***intellectual property*** including two major industry breakthroughs, 108 invention disclosures and 204 peer-reviewed publications.
- The Center provides access to ***non-exclusive royalty-free license*** to the intellectual property generated from all the projects. ***Exclusive licensing options*** may be available under special circumstances.
- Formal ***periodic project reviews*** along with continuous informal interaction and timely access to reports, papers and intellectual property generated by the Center.
- Access to ***high-quality student pool*** (majority are PhD students) who collaborate with industry research partners. This partnership provides students exposure to real-world research problems, and enables companies to conduct research with less investment, and evaluate and attract top talent.
- One-stop access to ***world-class research program***. From 2012-2020, the center has completed over 111 projects with 92 academic faculty and research scientists, and over 190 undergraduate and graduate students.
- ***Highly collaborative environment*** with added flexibility for industry members to construct joint research projects with faculty and other industry, and team-up with faculty to pursue joint federal grant opportunities.
- Access to ***state-of-the art big data research facilities*** such as the Visual Analytics Sandbox for IAB projects.
- The ability for industry members to ***propose research problems*** that are most relevant to the CVDI research areas.
- ***Professional Development*** opportunities so as co-author peer-reviewed articles with CVDI researchers and co-present at professional conferences with CVDI researchers.
- University ***site visits*** offer a broader understanding of the research status, accomplishments and capabilities and interests of the researchers and the universities
- ***Recruitment opportunities*** to attract outstanding graduate students. During the first two phases of CVDI, over 190 students were supported by CVDI research activities and grants.
- Opportunity to ***network and collaborate*** with other Industry Advisory Board members to explore joint ventures.

In summary, the CVDI value proposition is to offer a low cost, low risk venue for the industry and government agencies to validate the early stage innovation with involvement of university faculty, post doctorate scholars and students.

### **CAN SMALL BUSINESSES JOIN CVDI?**

Annual memberships for small businesses are available at a reduced rate. A small business is as defined by the U.S. Small Business Administration. Small business members benefit from a greater ROI and can qualify for additional funding and subsidized fees, for Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) grants obtained from the NSF.

### **HOW MUCH DOES IT COST TO BE AN IAB MEMBER?**

The cost of an annual membership in CVDI is \$50K. Small Business annual membership price is \$20K. Currently, a company making a \$50K membership investment is receiving over a 42:1 leverage. CVDI does allow for companies to purchase more than one membership (not to exceed two seats on the IAB) thus providing the company additional IAB slots and increased voting privileges.

### **HOW ARE IAB PAYMENTS HANDLED?**

Payment of membership fees are made to the sponsoring University as a lump sum effective March 1st or in four equal quarterly installments on the 1<sup>st</sup> day of March, June, September, and December of each year of sponsorship.

### **WHO ARE THE CURRENT IAB MEMBERS?**

- Cargotec
- CGI & CGI Federal
- ColdSteel Laser
- DeadSetBit
- Leidos
- M-Brain
- Medpod
- MultiMentor
- Schumacher Clinical Partners
- Softheon
- TietoEVERY
- US Army Geospatial Center
- USGS
- Workspace
- YL Verkot
- Zeblok
- Zebra

### **IS THERE A LIST OF PREVIOUS RESEARCH/PUBLICATIONS?**

Past and current research topics as well as all Center publications are available to IAB member companies via the CVDI collaboration portal. A selection of past research topics is also available on the CVDI website.

### **CAN IAB MEMBERS LICENSE CVDI RESEARCH?**

IAB members are entitled to a non-exclusive, royalty-free license to the results of the Center research during their active membership. Exact details as well as exclusive royalty options can be found in the CVDI Industrial Member Agreement.

### **ARE THERE OPPORTUNITIES FOR DEDICATED/EXCLUSIVE ROYALTY RESEARCH THROUGH CVDI?**

Please speak with your sponsoring university for options on exclusive enhancement contracts that can be layered on top of your IAB membership.

### **WHAT IS THE PROCESS FOR JOINING CVDI?**

The process for joining the Industry Advisory Board is very straightforward:

- 1) Meeting of interested parties between the sponsoring university and the potential member company is held, on an on-demand basis, to review, partnership agreement and identify mutual beneficial areas of research;
- 2) IAB contract signed by both parties, and
- 3) First annual/quarterly payment made to sponsoring university.

### **WHAT ARE MY RESPONSIBILITIES AS A CVDI IAB MEMBER?**

The IAB strongly influences the Center's strategic direction and research focus by having a leadership role in the selection and evaluation of research projects. Company commitment and IAB participation is key to a successful partnership.

Responsibilities include:

- Meet financial deadlines regarding membership fees
- Provide direction to potential CVDI research areas
- Participate in research project reviews
- Vote on project funding
- Attend at Fall/Spring IAB Workshops
- Provide mentorship to PIs and graduate students
- Connect with CVDI Researchers and other IAB members to develop collaborative relationships



## WHAT IS THE URL OF THE CVDI WEBSITE?

<http://nsfcvdi.org>



## OTHER QUESTIONS?

Interested in becoming a CVDI Industry Advisory Board Member or have any questions about membership? Let us come visit your company to better understand your challenges and demonstrate the benefits of a CVDI partnership as well as share some of our success stories.

Email [matt.delcambre@louisiana.edu](mailto:matt.delcambre@louisiana.edu) for more information.



[For more information visit http://nsfcvdi.org](http://nsfcvdi.org)