

Center for Science of Information: Call for Industrial Partnerships

Wojciech Szpankowski, Computer Sciences, Purdue University

Center for Science of Information

- Funded as a Science and Technology Center by the **National Science Foundation**
- Participating institutions include **Bryn Mawr, Howard, MIT, Princeton, Purdue, Stanford, Berkeley, UC-San Diego, and UIUC.**

Center for Science of Information: Mission

The Mission of the Center for Science of Information is to develop principles and human resources guiding the extraction, manipulation, and exchange of information, integrating space, time, structure, and semantics.

Center for Science of Information: Vision and Goals

- The Information Revolution started in 1948, with the publication of “A Mathematical Theory of Communication”.
- In this seminal work, Shannon information quantifies the **extent to which a recipient of data can reduce its statistical uncertainty.** “**semantic aspects of communication are irrelevant ...**” it was noted.

Center for Science of Information: Vision and Goals

- Classical Information Theory needs to be fundamentally redefined to meet new challenges posed by **large datasets, complex abstractions, and diverse applications** (modern communication, knowledge engineering, social and physical sciences, etc.).
- We need to extend traditional formalisms for information to include **structure, time, space, and semantics**.
- Various aspects of information, including **dynamical information, physical information, representation-invariant information, limited resources, complexity, and cooperation and dependency** must be explicitly handled.

Center for Science of Information: Project Team

The project team is composed of 30 coPIs/ Senior Personnel. The team includes

- **Eight members of National Academies (NAS/NAE)** – Cover, Lynch, Flajolet, Fung, Rivest, Rivest, Shor, Verdu.
- **A Turing award winner** (the highest distinction in Computer Sciences) – Rivest.
- **Two Shannon award winners** (the highest distinction in Information Theory) – Cover and Verdu.
- **Two recipients of the Nevanlinna Prize** (awarded every 4 years at the International Congress of Mathematicians, for outstanding contributions in Mathematical Aspects of Information Sciences) – Sudan and Shor.
- **A Humboldt Fellow** – Szpankowski.

Industrial Partners Program

Involving industry in fundamental ways in all aspects of research and development, with a view to:

- Defining **research avenues** of particular interest to industry.
- **Transition Center research products to industry** in a timely manner.
- **IP development.**
- Provide mechanisms for **targeted research investment** by industry.
- **Personnel exchanges** (scholar in residence from Industrial Labs, faculty sabbaticals, etc.).
- **Human resource development.**

Industrial Partners Program

Multi-tiered program:

- Corporate Members
- Small-Company Members
- Government Labs
- Non-Profit Organizations

Corporate Members Benefits

- Attendance at annual research review meetings/retreats to review recent, not yet published, research results.
- Attendance at NSF-organized annual meetings of all the STC Centers.
- Each Corporate Member will have electronic access to copies of all Consortium publications, including theses and papers appearing in peer reviewed literature, as they are submitted.
- First-hand interaction/ access to the Consortium student/ researcher pool, a potential source of technical collaborators as well as interns and future employees.

Corporate Members Benefits: Research and Intellectual Property

- Corporate Members will have the opportunity to participate in the discussion and provide advice about proposed research topics of the Consortium through representation on the Industrial Advisory Board (IAB).
- The right to use, by Corporate Member for its internal research and evaluation, all reports, data, and information made available by the Consortium, so long as Confidential Information is suitably protected.
- Early access to intellectual property developed by the Consortium as a result of the Core Projects.
- The opportunity to support Sponsored Projects with the Academic Partner(s) after mutual agreement.

Corporate Members: What the Center Brings?

- Access to considerable intellectual resources
- Access to well-qualified students and researchers
- Access to intellectual property
- Shaping the Centers research agenda
- Externship and researchers in residence programs
- Access to highly qualified and diverse research pool

Corporate Members: What the Members Bring to the Center?

- Complementary expertise
- Infrastructure (operational infrastructure), data (ranging from life sciences data to traffic traces from network infrastructure), and perspective.
- Avenues for Channeling IP to the Market
- Opportunities for Center Personnel.

Corporate Members

For more information (including Draft Consortia Agreements), please contact:

Prof. Wojciech Szpankowski
Director, Center for Science of Information
305, N. University Street
West Lafayette, IN 47906

spa@cs.purdue.edu
<http://www.isi.purdue.edu/>