The Research Park at the University of Illinois provides an environment where technology-based businesses can work with the research faculty and students on collaborative research and access UI services.

- 200 Acres adjacent to campus, developed with a private partner, 14 buildings
- 1,618 employees including 521 students

The Research Park has 91 companies and employs people in high-tech jobs

- Fortune 500 firms: Yahoo, Caterpillar, State Farm, ADM, Grainger, Raytheon, Abbott, Dow, Deere
- 45 companies currently in the EnterpriseWorks startup incubator (203 startups since it opened)
Research Park Area
CORPORATE INNOVATION CENTERS

Best practices have been shared by leading corporations with centers at the University of Illinois Research Park

- ADM Sustainable Bioenergy Modeling Center
- Caterpillar Simulation Center
- Caterpillar Data Innovation Lab
- Citrix, Bytemobile operation
- John Deere Technology Innovation Center
- Dow Chemical Innovation Center
- Dow Agrosciences
- Raytheon, Cybersecurity
- State Farm Research and Development Center
- Yahoo, Hadoop Center of Excellence
- Capital One Illinois Digital Campus Lab
- Abbott Laboratories
- Littelfuse
- Riverbed
- Ameren Innovation Center
- Anheuser-Busch InBev
- Foxconn Interconnect
- Abbvie Innovation Center
- Grainger
- Turn
Why do Corporations Locate in Research Park?

- **Students**: Employ student Interns year-round as a low-cost workforce with a high potential for full-time recruitment after graduation
- **Tech Talent**: Recruit engineering talent from campus and community
- **Scout**: Early awareness of technology and research trends and innovations
- **UI Relationships**: Proximity to sponsored research and engagements
- **Startups**: Corporate venture groups engage and partner with UI startups
- **Intrapreneurship**: Entrepreneurial environment for open innovation
- **Sharing**: Peer-to-Peer Learning from other corporations located here
- **Skills**: Continuing professional and technical education for employees
- **Facilities**: Access to University labs, computing, and facilities
- **Ease**: UI staff dedicated to helping companies setup and run operations
Student Year-Round Employment

- 516 students intern with Research Park companies part-time during the school year and full-time in the summer
  - 10-20 hours a week during school
  - Full time in the summer
  - Freshman – PhD level employed
  - Average wage: $18.19 per hour

- Students Employment examples:
  - Modeling and Simulation
  - Business intelligence
  - Mobile app development
  - Data analytics
  - Software development
  - User interface design
Sample Project Structure

Sample Innovation Center organizational chart

Corporate offices

- Market Research
- Information Tech Team
- Product Development

- Site Director:
  - Develop and operationalize the business plan
  - Establish relationships on campus
  - Manage operations
  - Enable cross-discipline coordination
  - Report performance

- Tech, Business Leads:
  - Mentor students
  - Apply technical skills
  - Understand tools and project implementation in the company
  - Provide business research needs

- Student Interns (6-8 per team):
  - Support project work
  - Lead other students

- Grad Students

Research Park at University of Illinois operations

- Business Development Research
- Data Analytics Lead
- Regulatory Filings or White Papers

GSUs, MBAs

Student Interns
Projects Sent to the Research Park

• Students help determine the merits of moving forward with full time resources
  – Prototype, write white papers, or test possible opportunities by creating a minimum viable product (MVP)

• Project better completed with an interdisciplinary team
  – Ad hoc teams can be recruited and staffed on a dynamic basis based on the types of projects coming to the center

• Bring a new, unbiased perspective without fear of internal corporate consequences and politics
  – Disruptive innovation

• Pipeline for future talent
  – Students learn the skills as interns and provide needed staff augmentation in new areas

• Lower cost model
  – Student work can drive down the cost of completion
Research Park Operation Examples
Caterpillar Simulation Center

- Caterpillar has an “apprenticeship” model employing UI students on teams led by experienced Caterpillar engineers, who serve as mentors, jointly deliver modeling and simulation services.
  - Identify the top students from campus, starting as freshman
  - Employing students from engineering, math, economics, industrial design
  - Hire both Engineering graduate and undergraduate students
  - 500+ interns have worked at the Caterpillar Simulation Center
  - More than 100 interns have become full time engineers at Caterpillar
- Added electronics in 2012, led by ECE engagement with Caterpillar
- Partnered with the College of Engineering on the NSF ERC POETS submission in 2014
- Hosted an entrepreneurship and innovation day with startups in January 2015
Caterpillar Data Innovation Lab

• New Caterpillar Data Innovation Lab opened on 2/19/2015, for data analytics projects and innovation projects
• Employing full time data engineers and will employ 18 students
• Areas of interest:
  – Video analytics
  – Customer data analytics
  – Product data analytics
  – Supply chain optimization, delivery models
  – Social media analytics
• Students to be employed from fields such as math, statistics, computer science, informatics
• The center will provide an entrepreneurial setting for testing new ideas and projects within Caterpillar, also plan to work with startup companies
ABInBev Bud Analytics Lab

• Bud Analytics lab opened in Fall 2013
• Focuses on data analytics, developing data research and innovation to solve problems ranging from assortment optimization, social media and market trends to large scale data initiatives.
• Rapid application development (RAD) 8 weeks or less
• New agriculture research, working with Ag Informatics for soil and weather data, also working with Agriculture Economics on campus. Predictive analytics has been a success for them.
• ABInBev donated 4 year full scholarships for 2 students at Illinois, 250 applications, 5 finalists have summer internships
• Currently managing 51 concurrent projects for 7 international zones
• Hosted a Hardware Hackathon in September on campus for “smart bar” new technologies
ABInBev Hardware Hackathon

- More than 100 participants, 6 teams formed
  - Hired students as ABInBev employees to work on innovation projects following the hack event, act as entrepreneurs
- Hosted over a weekend at the ECE Building on campus
- Hired a 3rd party firm to manage the hack and provide hardware tools, partnered with IEEE students
- Recruited students starting from Quad Day
Yahoo! Champaign
Yahoo! Expansion of Operations

• Won competitive multi-state site selection process for the new Yahoo workforce to locate in Champaign, Nebraska and California were alternatives
  – New building has space for 250 people
• 98% annual retention rate of employees vs. high turnover experience in Sunnyvale
  – Led Yahoo to place more critical projects in Champaign because of the stable and highly skilled workforce.
• Yahoo! now has 165 employees in the Research Park office, highly skilled software development engineers
  • Highest concentration of software engineers of any Yahoo! site worldwide
• Hadoop Center of Excellence and Data Pipeline Team
• Flurry developed as de facto platform for mobile app analytics
• 90+ patents from the 3 “Master Inventors” located here
• PhD level intern research with part time students (~12)
• Data sharing collaboration for research with CS Department
The work at the Research Center supports 3 State Farm departments:
- Property & Casualty Actuarial: pricing and financial analyses
- Systems: mobile application development, information systems
- Strategic Resources: market research, competitor analysis

Modeling and Analytic Graduate Network (MAGNet) is a graduate program in applied statistics with 50% graduate assistantships
- Created MS degree to fit skill needs, State Farm sponsors students if they work for State Farm for 3 years following graduation

The Research Center has 94 interns and 28 full time employees
- Innovation Ready projects each summer are interdisciplinary teams to create enterprise level innovations across departments. Presented at HQ at the end of the summer to the State Farm leadership team.
- Work is 10 hours per week during school and full time in the summer
- 700+ students have gone through the internship program since 2005

Added a Maker Lab in 2015

Most patents of any State Farm location
Capital One Illinois Digital Campus Lab (iDCL)

- The Digital Campus Lab is Capital One’s newest lab and the company’s first partnership with a university
- The Lab will focus on research and experimentation in data science, infrastructure automation, and software programming
  - Frameworks and technologies such as: Open Source, Big Data, Cloud, DevOps, mobile development
- UIUC is #1 university for student recruitment into their tech college recruitment program
- Interview about the grand opening
Dow Innovation Center & Dow Agrosciences

• Dow Agrosciences opened new R&D office in 2015
  – Grand opening event was on 9/28/15
  – DAS information technology projects and bioinformatics

• Dow Chemical projects areas include:
  – Software development
  – User interface improvement
  – High performance computing
  – Math modeling
  – Automation and Robotics
  – Internet of Things

• Total of 28 students currently, plus full time staff
  – DAS CEO Tim Hassinger, “a special relationship with the University of Illinois”
  – Florian Schattenmann VP of R&D "industry and academia can come together to solve grand challenges"
John Deere Technology Innovation Center

- John Deere Technology Innovation Center doubled size of operation in 2014, mobile and analytics focus.
- Deere gains access to students and academic experts from a broad range of domain areas, including engineering, agronomy, computer science, statistics, industrial design, psychology and information library sciences.
  - Klaus Hoehn, vice president of advanced technology and engineering at Deere, said, “Expanding the technology innovation facility at the University of Illinois enhances John Deere’s capability to lead innovation efforts in technology and engineering. In addition, this effort helps John Deere attract highly skilled talent from a leading university.”
- Agile working environment to increase collaboration and project team flexibility. Greater focus in the areas of information technology, user experience, advanced algorithm science, mobile solutions, agronomy, and high performing computing.
Abbott in the Research Park

- The Research Park office employs graduate students to work on a wide range of research projects, focusing largely on pediatric nutrition product development
  - Developing educational materials about nutritional ingredients like prebiotics, which are ingredients that aid in the healthy development of the immune system
  - Students work on regulatory filing preparation including manuscripts and GRAS dossiers for new ingredients, replacing work previously outsourced
  - Graduate students in nutrition and related fields are working on patent landscaping, writing manuscripts and white papers, completing literature searches, and technical writing. Disciplines include physics, biophysics, human health, engineering, kinesiology, MBA.
  - Some new IT projects are being explored related to sentiment analysis and social media

Abbott made a 5 year investment in research to create The Center for Nutrition, Learning, and Memory (CNLM) to research nutrition’s impact on brain cognition. The Center is the first interdisciplinary cognition and nutrition research center in the country.
AbbVie Innovation Center

- New Innovation Center opened in Fall 2014
- Employing students to work on IT/software projects to support development of therapeutics
  - Visualization tools (D3), data analytics, CRM programming, software development
- 12 students plus full time manager & 1 technical lead
Ameren Innovation Center

• Ameren opened a new innovation center in the Research Park in January 2015
  – Ameren center is working on data analytics, smart meter technologies, LED analysis, marketing projects, and mobile applications
  – 12 students and one full time site director to start
  – Local site director moved here on rotation from St. Louis

• Mary Heger, Ameren CIO said of the new center, “It makes us feel good when we step in the room because students think differently about our work and now we are integrating student work into our business. We are also learning from others in the Research Park.”
Grainger Design Center

• Grainger new R&D office and prototyping lab opened in January 2015
  – Internet of Things theme and Analytics theme in the new Research Park
to add prototyping and innovation capabilities
  – Includes lab and office
  – Reports to Innovation Team

• Employing mechanical, electrical, and computer engineering students
  – 50% bachelors, 40% masters, 10% PhD students
  – All students learn from each other, jointly complete projects

• Early prototypes created by students have already been shared with the
  Grainger CEO
Trading Firms in Research Park

- **Jump Trading** (Jump Labs) opened in March 2015
  - Jump Trading is a trading firm with HQ in Chicago focused on technology and algorithmic high-frequency trading strategies
  - The Research Park lab focus is high performance computing, data analytics, algorithms, and software programming
  - Co-located with Jump Capital and SimNext

- **Akuna Capital** is a trading firm specializing in option market making
  - Opened in September 2013 and initially hired 4 interns and by summer 2014 Akuna had 20 interns
    - Four of them are now successfully working as full-time developers with Akuna in Chicago
  - Disciplines include physics, computer science, engineering and finance and with different graduation levels — undergraduate, master level, PhD and post-doctoral research.
Ag Analytics in Research Park

- **Agrible** predictive analytic tools that deliver field-specific data and forecasts to help with decision-making in the field
  - Customers include independent growers, software developers, soil test laboratories, crop consultants, insurance agencies, commodities companies, traders, and major ag chemical companies
  - $4.1 Million in Series A Funding Led by Serra Ventures and ADM in 2015
  - Founded at the University of Illinois Research Park
  - New larger office opened in Fall 2015 for staff of 50+, expertise in atmospheric sciences, agronomy, high performance computing, software engineering

- **Granular** farm management software and analytics platform to help improve efficiency, profit and yield
  - Opened center in the Research Park in November 2015
  - San Francisco based company with investors including Google Ventures, Andreessen Horowitz, Kholsa Ventures, and Tao Capital Partners
Turn, Digital Advertising

- Turn is the largest independent company in the advertising technology sector and the recognized leader in platform-based mobile, video, display, TV, and social advertising.
- Provides digital advertising data, planning, activation and analysis from a single platform.
- Provider of a lightning-fast technology platform that responds in as little as 10 milliseconds to half of the world’s Internet page views. Delivers 2.5 million ads a second.
- Research Park site has software development and data analytics capabilities.
  - Specialized team in digital ads in social media
### Research Park Programs 150 Events Annually

#### Social
- Fire at Five
- Student outreach events
- Table Tennis Tournament
- Outside at Research Park

#### Interest Groups
- Prototyping Fair
- Corporate Directors
- Women in Tech
- CEO Roundtables

#### Recruiting
- Career Fair
- CS Events
- RP Open House
- Quad Day

#### Education
- Mobile programming
- Data analytics basics
- Pitch Party
- StartUp Café
- John Deere Day

#### Conferences
- Big Data Summit
- Share the Vision
- Mobile Day
- Pygmalion Music & Tech fest
Big Data Short Course and Consulting

• Practical Data Science for Industrial Applications, taught by data analytics expert Prof. Robert Brunner
• One day short course version of Practical Data Sciences, August 2015
  – 24 participants, 7 companies: Yahoo!, ADM, IMO, John Deere, Capital One, Serionix, Waterborne
• Four week 2.0 interactive course, started in September, followed by four week consulting POC project
  – 23 participants, 8 companies: Yahoo!, Caterpillar, Ameren, McDonalds, ADM, John Deere, Agrible, Grainger
• Hands-on coursework with demonstration and examples of data use.
  – Content includes: data acquisition, machine learning, transport, analysis, visualization, and archiving. The class allowed industry networking opportunities for those using data in their organizations.

Research Park hired Udatta Palekar as new Supply Chain optimization expert to consult companies, teach
Big Data Summit, 11/11/15

- The third annual Big Data Summit at the IHotel is 11/11/15
- Thought leaders from industry and academia for an interactive event to address big questions surrounding big data
- Topics include: Data Visualization, Business Value of Data, Data Science Team Building, the Internet of Things, Agriculture & Big Data, Big Data Case Studies, Supply Chain Management, and HPC
- Organizations participating include: MavenWave, Yahoo!, AbbVie, ABInBev, Slalom, Caterpillar, Agrible, Esri, State Farm, Ameren, John Deere, Ernst and Young, Granular, NCSA, Wipro, HDF Group, Wolfram
- Breakfast keynote: Michael Trott, Chief Scientist of Wolfram Alpha
- Lunch: Don DeLoach, CEO of Infobright, Chicago IoT Council
- 350+ registered to attend
- 70 companies registered, 35 different areas of the University
EnterpriseWorks Incubator

EnterpriseWorks (EW) is a 43,000 sq ft startup business incubator in the Research Park for early stage tech firms. It is operated by the University of Illinois to launch successful startups.

**Founders:** Over half of our current client companies were founded by UIUC faculty members. 93% of our clients have founders affiliated with the university.

**EnterpriseWorks Company Industry Sectors**

- Biotechnology
- Clean Technology
- Information Technology
- Materials/Nanotech
- Business/Consulting

**Number of Current Firms**

- Biotechnology: 15
- Clean Technology: 2
- Information Technology: 20
- Materials/Nanotech: 10
- Business/Consulting: 5

**Pie Chart:**

- Faculty: 65%
- UI Staff: 17%
- UI Student: 9%
- UI Alumni: 7%
- External: 2%
$879 Million in equity-based capital raised by EnterpriseWorks incubated companies

Pre-Incubation Pipeline

- NSF I-Corps Lean Startup Training
  51 teams since 2013
- I-Start professional services funding
  45 startups selected, raised $66 million
- Cozad new venture competition for student startups, 110 teams annually
- Tech transfer office (OTM) has 200 disclosures annually, key partner

Entrepreneurs-in-Residence

Number of EIR Consultations by Year:

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<td>123</td>
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<tr>
<td>2011</td>
<td>173</td>
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<tr>
<td>2012</td>
<td>270 (86 distinct companies/individuals)</td>
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<tr>
<td>2013</td>
<td>436 (169 distinct companies/individuals)</td>
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<tr>
<td>2014</td>
<td>483 (280 distinct companies/individuals)</td>
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Research Park SBIR/STTR Awards 2003-2014

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<th>Agency</th>
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Total: 219 awards, $62,923,008.14
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