Innovation & New Ventures at Northwestern
Today’s Goals

1. Who are we & what do we do at Northwestern?
2. What does the invention disclosure process look like?
3. What should research administrators know about INVO?
4. How can you learn more about what we do at INVO?
INVO | Our Mission

To catalyze the translation of Northwestern innovations to benefit the public

- Become a source of impactful innovations and products that improve lives
- Become a magnet for entrepreneurial talent
INVO | Our Activities

- **Technology Transfer**
  - IP Support (Consultation, Filing, Office Actions, etc.)
  - Technology Evaluations
  - Marketing Efforts

- **Innovation & Entrepreneurship Programming**
  - Workshops
  - Seminars
  - Mentoring
  - Internships
  - Coordination with Classes, etc.

- **Space**
  - The Garage
  - Faculty Hub
  - University Memberships (mHub, 1871 & MATTER)

- **Funds**
  - N.XT Fund ($10M)
  - NuSeeds Fund ($4M)
Technology Transfer

Technology transfer activities focus on moving technology from the University to the public domain

BAYH-DOLE ACT of 1980
Change in IP Ownership

BAYH-DOLE ACT

NEW PRODUCTS
Impact of Bayh-Dole on IP*

**PRE-BAYH-DOLE**
- <250 issued patent/year
- 30k university patents
- 5% led to new products

**POST-BAYH-DOLE**
- 5-6k issued patents/year (‘12-’14)
- 80k university patents (‘94-’14)
- 10-15% new products (‘12-’14)

**Significant Economic Impact of Bayh-Dole Act**
- 5000 startup companies
- >$500B GDP increase
- 3.8M US jobs

*AUTM US Licensing Activity Survey Highlights 2012-2014*
INVO Staff

INVENTION MANAGEMENT TEAM

Alicia Löffler, PhD  
Executive Director

Michael Moore, PhD  
*Life Sciences*

Nicole Janovick, JD, PhD  
*Life Sciences, Copyright*

Gwendolyn Humphreys, PhD  
*Life Sciences, Research Tools*

Wenting Luo, PhD  
*Life Sciences*

Andrea Minogue  
*Finance & Administration*

Arjan Quist, PhD  
*Physical Sciences, Engineering*

Sarah Kamper, PhD  
*Chemistry*

Isabella Ortiz, JD  
*Engineering, Computer Science*

Anne-Isabelle Henry, PhD  
*Chemistry, Materials, BME*

John Haugen, JD, PhD  
*Assoc. General Counsel*

Dimitra Georganopoulou, PhD  
*Life Sciences, Medical Devices*

NEW VENTURES TEAM

Lisa Dhar, PhD  
*New Business Ventures for Engineering*

Nick Maull, JD  
*Venture Funds*

Sonia Kim, PhD  
*Marketing & Educational Programs*
INVO | FY17 Stats

211 INVENTIONS DISCLOSED
529 PATENT APPLICATIONS

210 AGREEMENTS EXECUTED
$7.5 MILLION IN LICENSING REVENUES

185 PATENTS ISSUED
12 STARTUPS

Northwestern
The Invention Disclosure

An **INVENTION DISCLOSURE** is Northwestern’s record of an invention, the inventors involved, sponsorships, & other public disclosures and publications.

Inventors should plan to submit their invention disclosure **3-4 weeks prior to a public disclosure**
- Posters/abstracts/proceedings
- Journal articles, book chapters
- Conference presentations
- Some departmental seminars & thesis defenses
- Some grant proposals

**DISCLOSING AN INVENTION TO INVO DOES NOT PROTECT AN INVENTION. A PATENT APPLICATION MUST BE SUBMITTED TO THE USPTO**
Reasons to Disclose to INVO

1. PROTECT COMMERCIAL POTENTIAL
   INVO can provide feedback on how to proceed in the commercialization process.

2. PROTECT INTELLECTUAL PROPERTY
   If IP protection is appropriate, INVO can maximize IP protection if invention is disclosed in advance of public disclosure.

3. FULFILL NU’S RESPONSIBILITY TO REPORT TO RESEARCH SPONSORS
   INVO must report all inventions to respective public and private research sponsors.

4. IMPROVE MARKETING WITH INDUSTRY PARTNERS
   INVO can help provide industry with insight into available technologies and the research that is taking place at the university.
The Invention Disclosure

Policies and Forms
Access policies and forms related to disclosing, patenting and commercializing inventions, including royalty distribution, intellectual property and conflict of interest.

Disclosure forms
- Invention Disclosure Form
- Lurie Invention Disclosure Form: For Pediatrics faculty with a Lurie appointment (more info)
- Copyright Disclosure Form: Includes but not limited to literary and artistic works
- Software Disclosure Form: Includes but not limited to source code
- Research Reagent/Research Tool Registry
# Invention Disclosure Form

Please COMPLETE, SIGN and SEND with any relevant attachments by EMAIL to: invodisclosure@northwestern.edu

## INVENTION TITLE

<table>
<thead>
<tr>
<th>TITLE</th>
<th></th>
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</table>

## INVENTOR(S)

<table>
<thead>
<tr>
<th>NAME (first, middle, last, title)</th>
<th>NU SCHOOL or Joint Institution</th>
<th>DEPT. OR APPOINTMENT (wif Division of Medical)</th>
<th>POSITION</th>
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## SOURCES OF SUPPORT, RESEARCH SPONSORS AND GRANT NUMBERS

<table>
<thead>
<tr>
<th>SOURCE OF FUNDS</th>
<th>AGENCY OR ENTITY PROVIDING SPONSORSHIP/FUNDS</th>
<th>TITLE - GRANT/AWARD</th>
<th>GRANT/AWARD NO.*</th>
</tr>
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<tbody>
<tr>
<td>U.S. Federal Agency</td>
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<td>Foundation</td>
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<td>Corporate</td>
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<tr>
<td>Northwestern University Funds, Facilities</td>
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<tr>
<td>Other</td>
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</table>

**SUBCONTRACTOR INFORMATION**

<table>
<thead>
<tr>
<th>Prime Contractor Name, City and State</th>
<th>Prime Grant Number</th>
<th>Subcontract Grant Number</th>
</tr>
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</table>

## Definition of Inventorship vs Authorship*

*Inventorship refers to the legal relationship between the inventor and the invention, while authorship refers to the role in the creation of the invention.*

## Accuracy of Grant Information*

*Accurate and complete grant information is crucial for proper attribution and compliance.*
Invention Disclosure Form

- Describe the invention in a less technical manner.
- What is the relevance to the public?

- Describe the invention in a more technical manner.
- This helps our team and outside counsel to understand how this invention is distinct from other inventions.

<table>
<thead>
<tr>
<th>MARKETING ABSTRACT</th>
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<tbody>
<tr>
<td>TECHNICAL FIELD (in a few words. What is the technical field or subject of the invention?)</td>
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</table>

| ABSTRACT | Write a short paragraph, in 200 words or less, describing the overall need and a lay summary of the technology. Please use non-confidential language. |

| APPLICATIONS | Describe all potential applications of the technology in bullet points. |

| ADVANTAGES | (How does it improve upon existing technologies? What differentiates it from other solutions to the problem it addresses? Please write in bullet point format.) |

| KEY WORDS | Include any key words or phrases, preferably at least 3, that could be used to search for related art or identify this invention for use in a tracking database. |

<table>
<thead>
<tr>
<th>DESCRIPTION OF INVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Summary of Technology (Also attach any relevant manuscripts and/or publications.)</td>
</tr>
</tbody>
</table>

| Technical Description | (Also attach any relevant figures. Provide enough detail so that someone skilled in your field could replicate the invention.) |
Invention Disclosure Form

- Note work that is similar and differentiate. Better to disclose information upfront.
Invention Disclosure Form

Provide COMPLETE contact information.*

- Name should be a LEGAL name—what’s on a passport and legal documents.
- For patent filing, we need to include the country of citizenship.
- Please inform us of any address changes for future correspondences & royalty checks.
- Electronic signature is acceptable.

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<table>
<thead>
<tr>
<th>MATERIALS ASSOCIATED WITH INVENTION</th>
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<tbody>
<tr>
<td>Did you transfer any raw materials (e.g., DNA, peptides, cell lines, vectors, catalysts, polymers, alloys, etc.) of this invention?</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

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This disclosure is submitted pursuant to the Northwestern University Patent and Invention Policy and is subject to all the terms of that policy. See http://www.northwestern.edu/policies/patent-invention-policy for details. If this disclosure is accepted by the Innovation and New Ventures Office of Northwestern University, we hereby agree to execute all necessary documents, assigning to Northwestern our rights in any patent application filed on this invention.

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<table>
<thead>
<tr>
<th>INVENTOR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME (as it will appear on any patents, e.g., first, middle, last)</td>
</tr>
<tr>
<td>UNIVERSITY PHONE</td>
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<tr>
<td>CELL PHONE</td>
</tr>
<tr>
<td>HOME ADDRESS</td>
</tr>
<tr>
<td>CITIZENSHIP</td>
</tr>
<tr>
<td>EMPLOYEE ID (if applicable)</td>
</tr>
<tr>
<td>SIGNATURE</td>
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</tbody>
</table>

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Note: A digital signature (e.g., Jive or Blackboard) or a wet signature can be accepted as the Signature Box must be signed and approved by a member of the Office of Human Resources at Northwestern University in order to use nutritional products or compounds.
Life of a Patented Technology

1. Disclosure Submission
2. Invention Assessment
3. Provisional Patent App
5. International Patent App
6. US Issued Patent
7. Foreign Issued Patent

- 30 Days
- 1 Year
- 3-5 Years

Prior Art Analysis
- Enabled application?
- Identifiable market?
- Non-problematic FTO?

Licensee on horizon?
Licensee willingness to pay?
Important Take-Homes

Complete the disclosure as thoroughly as possible.

Be available to meet with IM to discuss your technology.

Respond to IM as quickly as possible as they may have time-sensitive questions.

Send relevant updates to IM, such as future public disclosures or technology development.
1. Explore Additional Sponsored Research Opportunities
   INVO coordinates with other offices to review IP stipulations.
   Ideally, several weeks are needed to review these agreements.

2. License Technology to Existing Company
   INVO helps identify and negotiate license agreements.
   If there’s interest, IMs contact faculty to discuss.

3. Create University Startup
   INVO has Startup Guide online.
Northwestern Licensees (Past & Present)
## Our Startup Playground

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Diagnostic Fingerprinting</td>
</tr>
<tr>
<td>Nanomaterials</td>
</tr>
<tr>
<td>Personalized Medicine</td>
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<tr>
<td>Geolocation</td>
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<tr>
<td>Artificial Intelligence</td>
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<tr>
<td>Nanoparticles</td>
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<tr>
<td>Therapeutics</td>
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<tr>
<td>Biotechnology</td>
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<tr>
<td>Big Data</td>
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<tr>
<td>Tangible Haptics</td>
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<tr>
<td>Robotics</td>
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<tr>
<td>Advanced Materials</td>
</tr>
<tr>
<td>Biomedical 3D Printing</td>
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<tr>
<td>Nanofabrication</td>
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<tr>
<td>Gas Storage</td>
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<tr>
<td>Machine Learning</td>
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<tr>
<td>3D Imaging</td>
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<tr>
<td>Medical Devices</td>
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<tr>
<td>Point of Care Diagnostics</td>
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<tr>
<td>Wearables</td>
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<tr>
<td>Electricity Storage</td>
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<tr>
<td>Software Optimization</td>
</tr>
<tr>
<td>Microfluidics</td>
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<tr>
<td>Thin Film Transistors</td>
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<td>Surgical Devices</td>
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<tr>
<td>Sound Engineering</td>
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<tr>
<td>Plastic Recycling</td>
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<tr>
<td>Software Encryption</td>
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<tr>
<td>Geolocation</td>
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<td>High Performance Alloys</td>
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<tr>
<td>Point of Care Diagnostics</td>
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<tr>
<td>Cancer Diagnostics</td>
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<tr>
<td>Biomedical 3D Printing</td>
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<tr>
<td>3D Vision</td>
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<tr>
<td>Plastic Recycling</td>
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<tr>
<td>Northwestern</td>
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</tbody>
</table>

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22
Northwestern Startups
NU Startup Funding & Acquisitions

$56M+  SBIR/STTR Funded Active Startups (2006-2016)

$306M+  VC-Backed Startups

$2.72B+  Acquired Startups
Recent Issues for Discussion

Pre-Award
- Commercialization Plan or IP Provisions – Reach out to INVO/Invention Manager early

Disclosures – Key items
- Employee ID to identify personnel @ NU – our system is linked to myHR
- Funding accuracy
  - Corrections result in costly fees to NU – each one can be hundreds of $
  - When possible, include grant Project Award Summary as an attachment to disclosure

Agency Requests
- If you are ever asked from an agency about reporting, please reach out to INVO early
- iEdison Reporting – INVO takes care of this; Please reach out to INVO/Invention Manager if asked by agency
- Foundation/Private funding compliance – INVO takes care of this; Please reach out to INVO if asked by agency
Ways to Learn More about INVO

WEBSITE:  Visit www.invo.northwestern.edu
INVO NEWSLETTER:  Sign up on our home page
SOCIAL MEDIA:  Follow us on Twitter (@INVOatNU)
STUDENT OPPORTUNITIES:  INVO Practicum Interns and N.XT Associates
THANK YOU

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Andrea Minogue
a-minogue@northwestern.edu