

# Hot Topics in Informatics and Intellectual Property Law

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Center for Intellectual Property Law and Innovation

McKinney School of Law

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Sara Anne Hook, M.B.A., J.D.

Professor and Program Director, Informatics Core, School of  
Informatics and Computing, IUPUI

Adjunct Professor of Law, Robert H. McKinney School of Law,  
Indiana University

# Today's Program

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- What is Informatics?
- What is Legal Informatics?
- Areas of Law at the Intersection of Law and Technology:
  - Electronic Discovery
  - Cybersecurity
- New and Emerging Technologies for the Practice of Law
- Challenges with New and Emerging Technologies:
  - Unauthorized Practice of Law (UPL)
  - Law Firm Marketing and Advertising
  - Intellectual Property Law Issues
- The Future of Law Practice and How Informatics Can Help

# History of Informatics

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- ❑ Around the world
- ❑ First School of Informatics: University of Edinburgh, Scotland
- ❑ Second School of Informatics: Indiana University, 2000
- ❑ Since that time, other schools and programs
  - Some called School or College of Informatics, Northern Kentucky University College of Informatics
  - Some developed from Library Science or Information Science programs – the iSchools group <http://www.ischools.org/>
  - Some information technology programs have considerable overlap
  - Informatics is found in other schools, such as Nursing Informatics

# What is Informatics?

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- ❑ Understanding the impact technology has on people.
- ❑ The development of new uses for technology.
- ❑ The application of information technology in the context of another field (legal informatics, health informatics).
- ❑ Informatics is a new field of study that gives students the skills to apply information technology to another field - from health care to journalism to biology to economics.
- ❑ “Informaticists” can then use technology to harness the power of information and make exciting new discoveries that make us more productive at home and at work.

# More Definitions

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- ❑ A bridge between content areas/disciplines/fields of study and the technology
- ❑ “X” informatics – with the X standing for any content area of subject – music informatics, health informatics, bioinformatics, legal informatics, etc.
- ❑ A unique curriculum that combines IT concepts with other areas of study, opening rewarding career opportunities for graduates.

# Our Undergraduate Programs

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## Bachelor's degrees:

- Informatics: students choose an “area of specialization” - one of these choices is legal informatics. Also includes 5-year BS/MS programs and a new B.S. to M.J. 5-year program.
- Media Arts & Science
- Health Information Management
- Also undergraduate certificates in:
  - Informatics
  - Medical Coding

# Our Master's Programs

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- Master's degrees in:
  - Bioinformatics
  - Health informatics
  - Human-Computer Interaction (HCI)
  - Media Arts & Science
  - Informatics with five specializations – including Sports Analytics and Data Science
  - Collaborations with other schools

# Our Doctoral Programs

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- PhD degrees in:
  - Bioinformatics
  - Health Informatics
  - Human-Computer Interaction (HCI)
  - Developing a PhD in Data Science

# Early Attempt at a Virtual Courthouse

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# What is Legal Informatics?

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- ❑ Legal informatics has been described as “the study of the application of information technologies to the field of law and the use of these technologies by legal professionals.”
- ❑ Therefore, the focus of the legal informatics area of specialization/certificate is on the effective use of cutting-edge technology in the study and practice of law.
- ❑ Legal informatics also includes the law related to technology, such as intellectual property law, privacy and security.

# History of Legal Informatics

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- ❑ Used infrequently – most notably in the countries of the European Union and Japan
- ❑ In the U.S., “legal information technology”
- ❑ IT law/computer law versus IT applied to the practice of law
- ❑ Jurimetrics
- ❑ Results of research paper I wrote in June 2004
- ❑ University of Edinburgh School of Law
- ❑ Legal informatics IS NOT legal bibliography

# What About Career Opportunities?

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- ❑ As law firms convert from a paper-based practice to a practice using a full range of software, there are a considerable number of exciting career opportunities.
- ❑ Responsibilities could encompass everything from setting up databases of documents for a trial to running all of the software to manage a law firm's operational functions, such as time-keeping and billing.
- ❑ Duties could also include preparing audio, visual and multimedia materials and presentations for accident reconstructions, criminal investigations and to explain the intricacies of machinery and high-tech inventions.

# What About Career Opportunities?

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- ❑ Current openings in legal informatics may be found on the websites for ILTA: <http://careers.iltanet.org/jobs>
- ❑ Prediction is that one of the hottest areas for law will be in law + tech – in other words, someone with legal background and strong technology skills.
- ❑ A student who pursues the legal informatics as an area of specialization may choose to continue his/her education by attending law school to become an attorney or by seeking the Masters of Jurisprudence (MJ) degree.
- ❑ 95% of UK law firms are undertaking major IT projects to increase efficiency.

# Courses in the Legal Informatics Area of Specialization/Certificate

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- I350 Foundations in Legal Informatics – Fall (all types of hardware and software used in a law practice and the courtroom)
- N480 Technology and the Law – Spring (covers intellectual property law, contracts, employment agreements, licensing, rights of privacy and publicity issues)
- I330 Legal and Social Informatics of Security – Spring (cybersecurity, including privacy issues)
- I470 Litigation Support Systems and Courtroom Presentations (specialized software tools, especially SmartDraw) - Summer
- I410 Electronic Discovery – Fall
- All courses are online
- 15 credit hours
- Free-standing or as part of a degree
- Undergraduate certificate, but all courses also available at graduate level

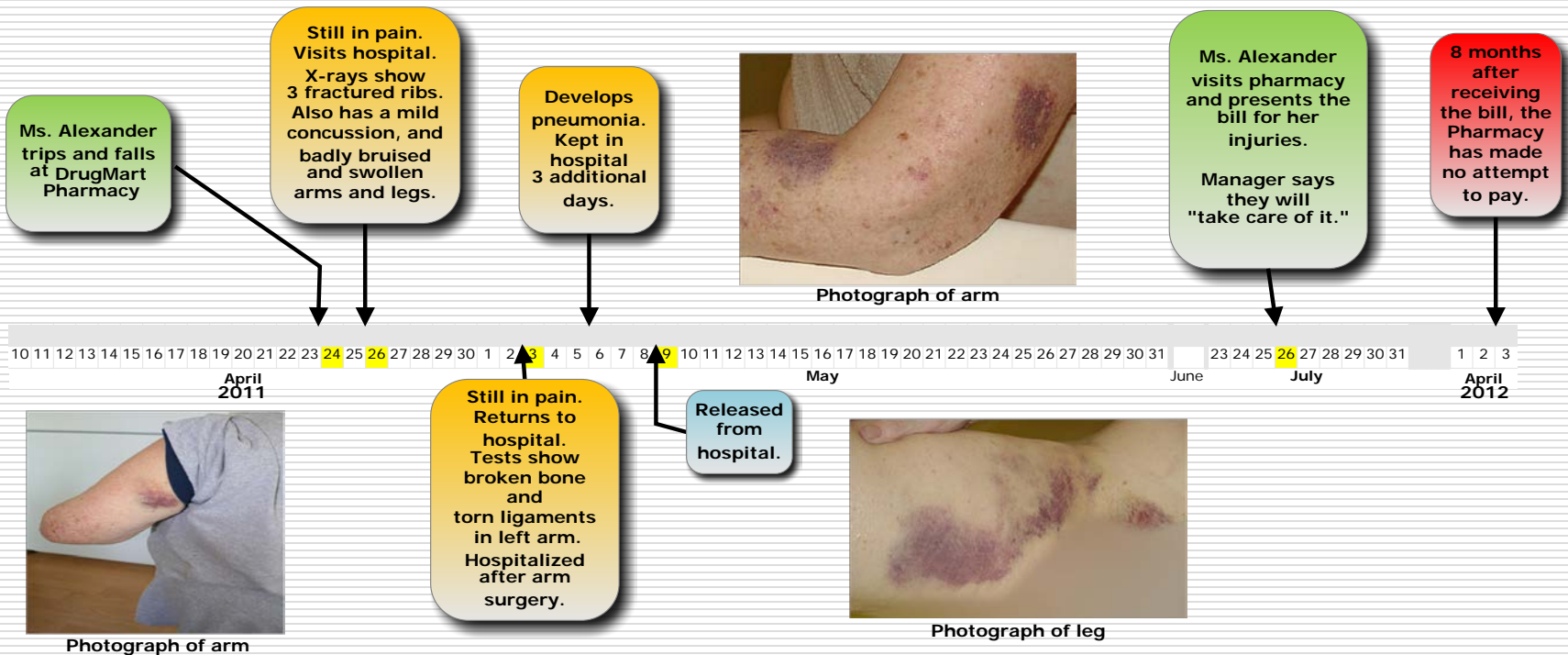
# Examples of Student Work from INFO I470 Litigation Support Systems and Courtroom Presentations

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Based on a real-world event – a slip and fall in a pharmacy.



# A Year in the Life of Sally Jo Alexander



# Interior of DrugMart Pharmacy – Overhead View

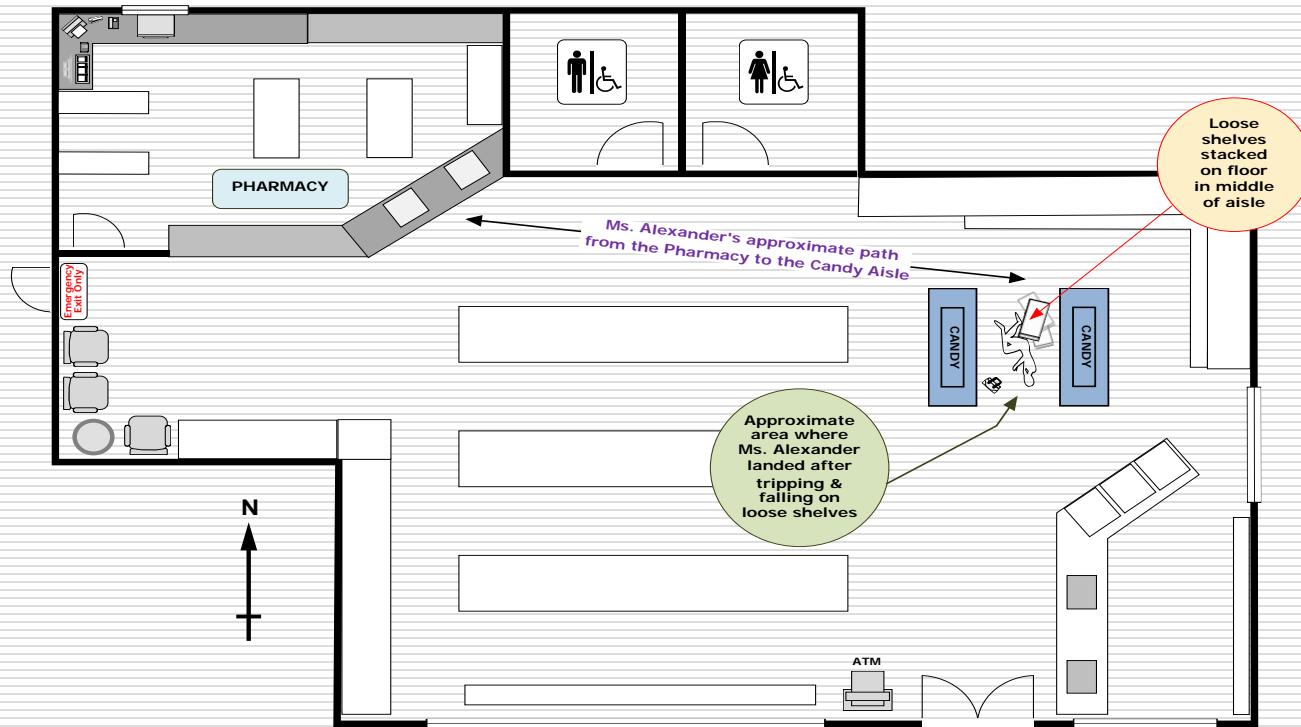


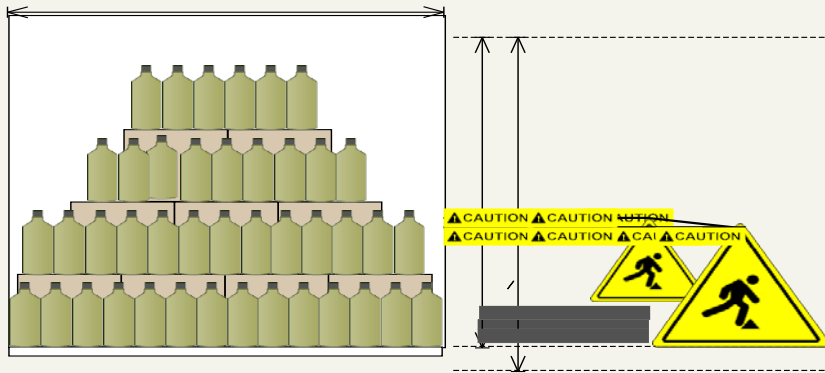
Illustration of DrugMart Pharmacy. All measurements in this and the illustrations to follow are approximate.

### Aisle 3

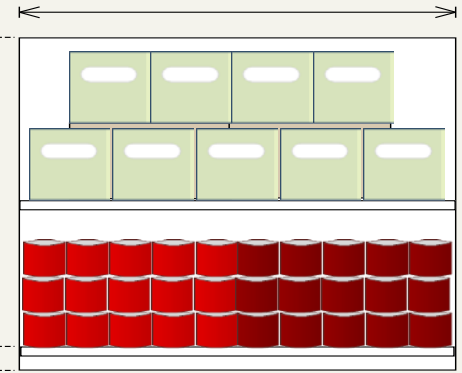


SmartDraw Academic Edition  
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### A: End Rack



### B: End Rack



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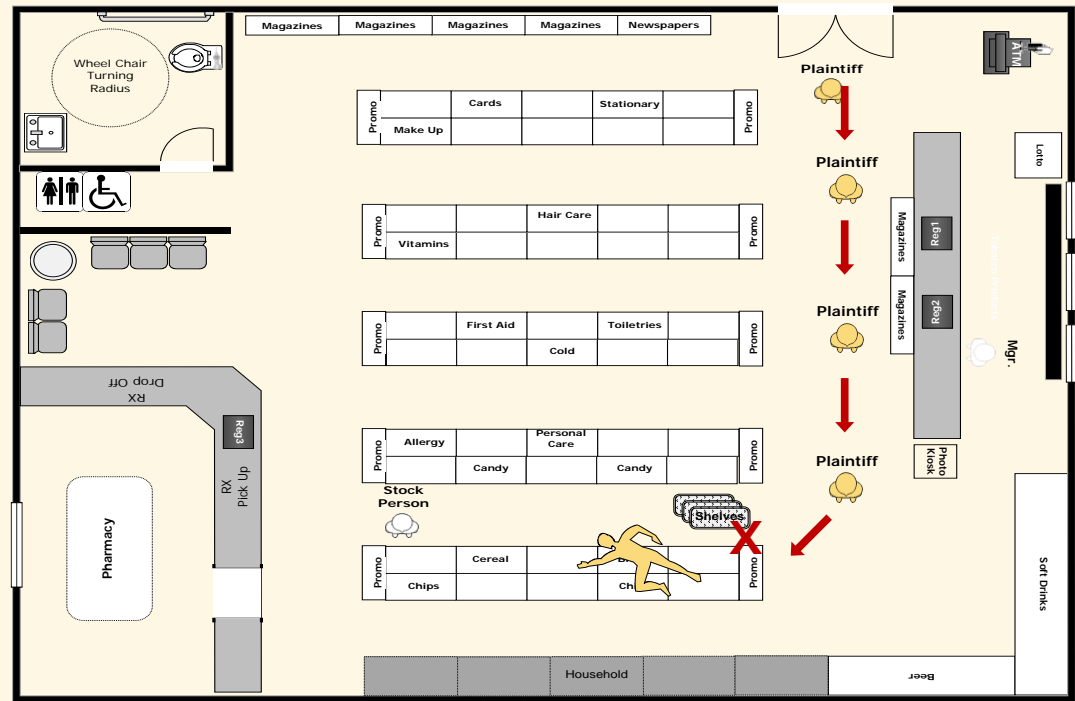


# Accident Recreation

## Accident Description:

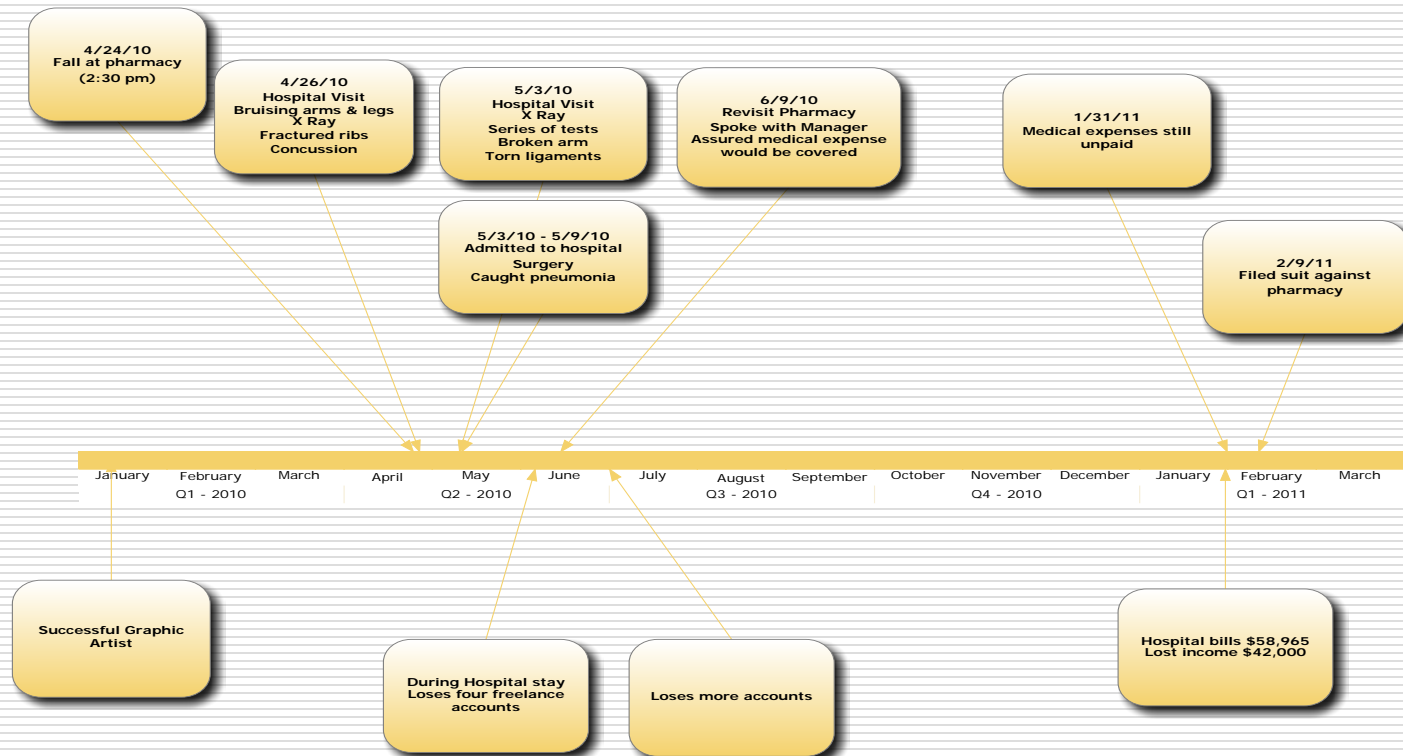
Plaintiff arrived at the pharmacy to pick up her prescription. She entered through the main entrance and crossed the front of the store.

She proceeded to walk toward the candy aisle. Upon turning up the aisle, she tripped over shelving units which were placed on the floor. The fall resulted in the plaintiff's injuries.



Pharmacy

# Event Timeline



# 3D Animations Used as Evidence

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- Many companies provide this service.
- The one I always highlight is Demonstratives, Inc., <http://www.demonstratives.com/>
- Cases this company has worked on are:
  - *KSR v. Teleflex* - animation was used at the argument in front of the U.S. Supreme Court
  - *Uniloc v. Microsoft*
  - *Affymetrix v. Illumina*
  - *Sprint v. Vonage*



**DEMONSTRATIVES**

Now part of  **ESI**

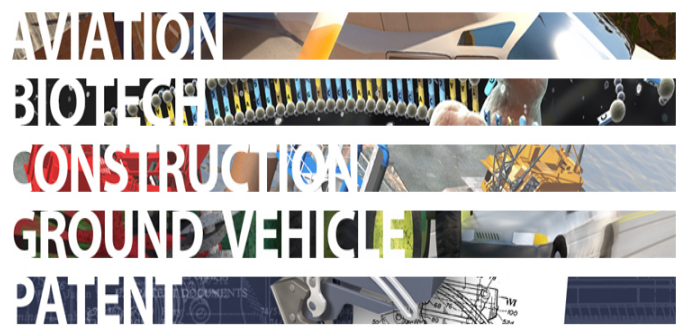
*A Clear Demonstration of Fact*

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HOME > GALLERY > 3D ANIMATION

- 3D Animation
- Aviation
- Construction
- Our Perspective
- Environmental/Maritime
- General & Product Liability
- Ground Vehicle
- Intellectual Property
- Medical Devices

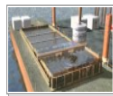
## 3D Animation Gallery



We are the industry leader in applying sound, scientific principles to every litigation project with flash animation and other tools. We handle a wide variety of case areas including aviation, biotechnology, construction, engineering, environmental law, ground vehicle, intellectual property, medical devices, and product liability. The best way to see our level of expertise is to view our work. Our team can create the most compelling and technically accurate images in the industry. Click the thumbnails below to view the sample 3D animations in that category.



Aviation



Construction



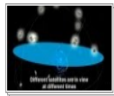
General & Product Liability



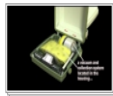
Ground Vehicle



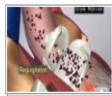
Intellectual Property: Biotechnology



Intellectual Property: Electronics



Intellectual Property: Mechanical



Medical Devices



Environmental/Maritime



DI's Perspective



A Clear Demonstration of Fact


HOME > CASE STUDIES

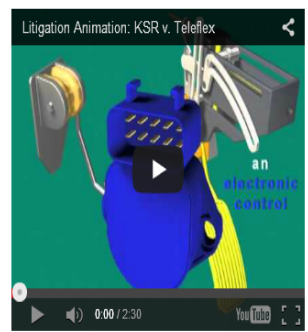
## KSR v. Teleflex

NOVEMBER 1, 2011

(Mechanical Engineering) – Demonstratives created animations for KSR, demonstrating the operation of adjustable foot pedals in the landmark U.S. Supreme Court decision on obviousness as applied to patent claims. The Solicitor General of the United States stated, “[The] Petitioner has supplied an animation that helpfully illustrates that point.”

### Related Documents

-  KSR v. Teleflex  
See how our animation evidence accompanied a case to the Supreme Court



« Back

**Demonstratives**  
2321 North Loop Drive, Suite 201  
Ames, Iowa 50010

Telephone: (515) 216-0174  
Fax: (515) 296-6121  
info@[demonstratives.com](http://demonstratives.com)

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Success in the courtroom relies upon the ability to simplify complex evidence and clarify legal arguments. Demonstratives applies sound, scientific principles to every litigation project for a growing variety of case areas, including aviation, biotechnology, construction, engineering, environmental law, ground vehicle, intellectual property (IP), medical devices, and product liability. Demonstratives is the preferred provider of 2D graphics and 3D litigation animation nationwide.

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# Technology in a Modern Courtroom...

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- ❑ Means that law firms, courts and other law-related organizations will need people who have appropriate training in legal informatics (law + tech).
- ❑ Electronic discovery as an emerging area in law practice – at the intersection between legal informatics and records management.



# Intersection Between Informatics and Law

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- Electronic discovery – IP law cases, amended FRCP (proportionality), predictive coding, social media (ephemeral), wearable technology, Internet of Things
- Law firm technology – Rule 1.1 on Competence and Comment
- Cybersecurity: legal, social, organizational, technological and physical issues as well as privacy rights – Internet of Things/ wearable technology
- Information Governance (Collection, preservation, accessibility of information/data) – for law firms and their clients. Information as a strategic asset.
- Knowledge management – “big data”, data analytics and data visualization, “dark” data

# Challenge for Law Firms

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- The T-Shaped Lawyer – Nelson and Simek
- Quote from the State Bar of Michigan Solo and Small Firm Institute on a law firm’s intellectual capital:
  - 80% of a law firm’s “knowledge” is stored as non-structured data, such as electronic documents and email. (Note: also referred to as “dark data”.)
  - If you can’t access it, you are giving it up.
  - This is knowledge management.

## From the *ABA Journal* – June 2015

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- Nearly 70% of legal technology professionals expect their organizations' investment in legal data analytics to increase over the next two years. Currently,
  - 64% report using it for e-discovery
  - 33% report using it for litigation management
  - 29% report using it for information governance

# 10 Hottest Alternative Legal Careers in 2016 – *The National Jurist*

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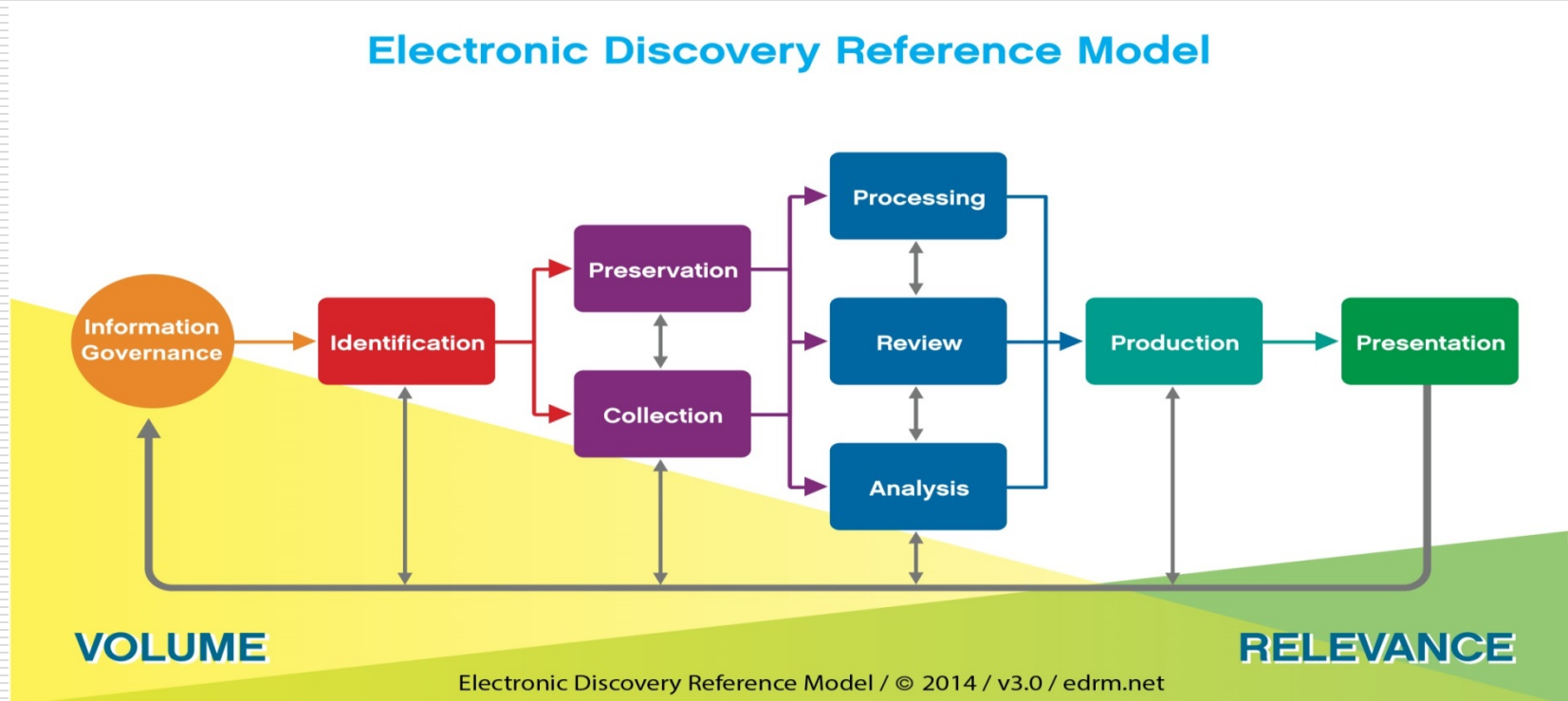
- Compliance
- Legal Technology\*
- Risk Management
- Intellectual Capital Management
- Contracts and Procurement
- Data Protection\*
- Campus Administration
- Law Teaching and Training
- Mediation
- Insurance

# Other Hiring Predictions

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- Information governance
- Predictive coding/electronic discovery
- Cybersecurity
- Privacy consulting
- Jobs with legal technology vendors
- Legal technologist
- Legal knowledge engineer
- Legal project manager
- Data Solutions Practice – Warner Norcross & Judd

# Each Step of the EDRM Can Benefit from the Technology



EDRM: <http://www.edrm.net/>, accessed 2/10/16.

# Legal Technology Comes Into Its Own: “The Triumvirate”

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- Professional Associations: International Legal Technology Association (ILTA)
- Journals: *Legal Tech News*
- Conferences: ABA Tech Show, LegalTech, ILTA conferences
- Education: Legal informatics, more experiential learning using technology

# New and Emerging Technologies for the Practice of Law

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- ❑ Casemaker, Fastcase, Google Scholar challenge the monopoly of Lexis and WestLaw – also Ravel - <https://www.ravellaw.com/>
- ❑ Heatmaps – for example, for predictive coding cases, heat map of global risk
- ❑ Benchmarking of billing rates
- ❑ Venture capitalists now funding legal services/legal technology start-ups – new generation of legal technology entrepreneurs
- ❑ Lex Machina – machine learning and natural language processing for documents related to intellectual property cases – Mark Lemley at Stanford
- ❑ Patent Board Ferret - <http://www.patentboardferret.com/>
- ❑ Cloud computing – but security issues and see rules of professional conduct

# Cont.

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- ❑ Groupon
- ❑ Avvo, ZeekBeek – lawyer matching and marketing services
- ❑ Social media - “Gaggle on the Gavel”
- ❑ Diligence Engine – software that automates contract review
- ❑ Practice management systems – Clio
- ❑ Client Intake – Lexicata, Intake 123 and Rocket Matter Intake
- ❑ Analytical tool to predict Supreme Court decisions
- ❑ PactSafe, Inc., CasePacer, ipAnalytx

# The Challenges of New and Emerging Technologies

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- ❑ Unauthorized Practice of Law (UPL) – LegalZoom, trust mills, immigration cases – grappling with the future of the legal profession and how to educate lawyers for the 21<sup>st</sup> century – because technology companies are now attempting to fill the gap
- ❑ Law firm marketing and advertising – per the Indiana Rules of Professional Conduct – proposed revisions would remove all of the examples, with just a standard that the material not be “misleading”
- ❑ Can technology assist with addressing the burgeoning problem of unserved and underserved citizens?
- ❑ Can technology make the practice of law more efficient, so that it costs less (so that more people can afford it)?
- ❑ Intellectual property law issues
- ❑ Virtual law practice – but what about licensure?

# The Future of Law Practice and How Informatics Can Help With This

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- ❑ Big data, data analytics and data visualizations – for internal law firm management and marketing as well as case analysis – already being used in IP/patent analysis
- ❑ Electronic discovery systems and predictive coding
- ❑ 3D printing of demonstrative evidence
- ❑ Law firm website development, including usability testing
- ❑ Software tools for nearly any law firm function
- ❑ Mobile technologies and apps – but what about security?
- ❑ Cloud computing, outsourcing – but security and privacy issues with this

# But Now for Something Completely Different...

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- 3D Printing
- At the intersection of law and informatics:
  - Intellectual property law issues
  - Rules of evidence, civil procedure, etc.
- My flute made with 3D printing
  - The first thing my colleague asked was whether there were any copyright concerns.
  - Earlier project was The Virtual Early Flute.
  - First project: *Fiddler's Fruit* shoulder rests

# Legal Issues with 3D Printing

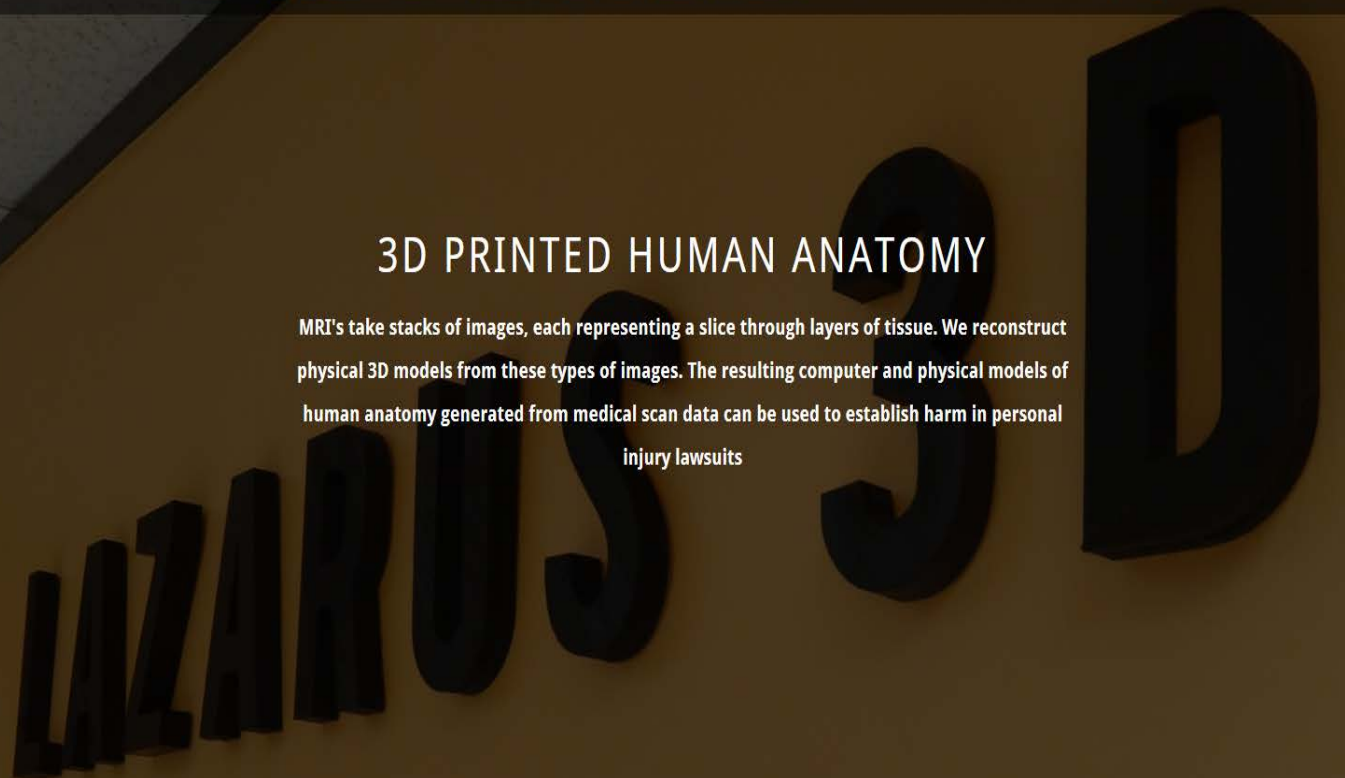
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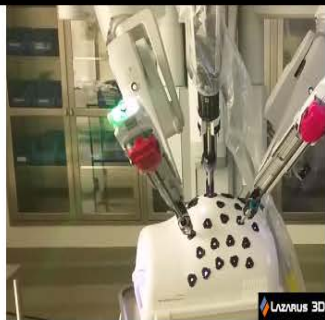
- ❑ Dasari, H. (2013). Assessing copyright protection and infringement issues involved with 3D printing and scanning. *AIPLA Quarterly Journal*, 41 (2), 281-318.
- ❑ Dillon, S. (2014). Infringement by blueprint: Protecting patent rights in a world of low-cost 3D printing. *AIPLA Quarterly Journal*, 42 (3), 426-458.
- ❑ And also being used in litigation: Laird, L. Physical evidence: A Florida company offers 3D printing for demonstrative evidence. *ABA Journal*, Feb. 2015, p. 11. New companies being established to provide this service.
- ❑ Xin, X. (2016). Patent eligibility of 3d-Printed Organs. *AIPLA Quarterly Journal*, 44 (1), 143-170.



# 3D PRINTED HUMAN ANATOMY

MRI's take stacks of images, each representing a slice through layers of tissue. We reconstruct physical 3D models from these types of images. The resulting computer and physical models of human anatomy generated from medical scan data can be used to establish harm in personal injury lawsuits





## Surgery Simulation Models



## 3D printing demonstrative evidence



## 3D printing for television

# 3D PRINTED EVIDENCE

HOME MODELS ABOUT CONTACT STORE

## *Forensics Models:*



## *Medical Models:*



# Attempts to Make Instruments Using 3D Printing

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- ❑ 3D-Printed Cello: Video: Met Orchestra cellist performs 3D-printed cello. *The Strad* (April 23, 2015), <http://www.thestrad.com/cpt-latests/met-orchestra-cellist-performs-3d-printed-cello/> (last visited 2/10/16).
- ❑ 3D-Printed Violin: 2-string 3D printed violin to be revealed in New York. *The Strad* (March 9, 2015), <http://www.thestrad.com/cpt-latests/2-string-3d-printed-violin-revealed-new-york/> (last visited 2/10/16).
- ❑ 3D-Printed Violin Bow: Student Creates 3D Violin Bow. *The Strad* (May 27, 2015), <http://www.thestrad.com/cpt-latests/student-creates-3d-printed-violin-bow/> (last visited 2/10/16).
- ❑ 3D-Printed Guitar: <http://www.odd.org.nz/atom.html> (last visited 2/10/16)

# Roll over Stradivarius! A 3-D printed cello?!

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# 3D-Printed Violin: 2-string 3D printed violin to be revealed in New York

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# 3D Printed Guitar (\$3500, includes case)

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# From Baroque flute to 3D flute...

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# Baroque Flute Iconography

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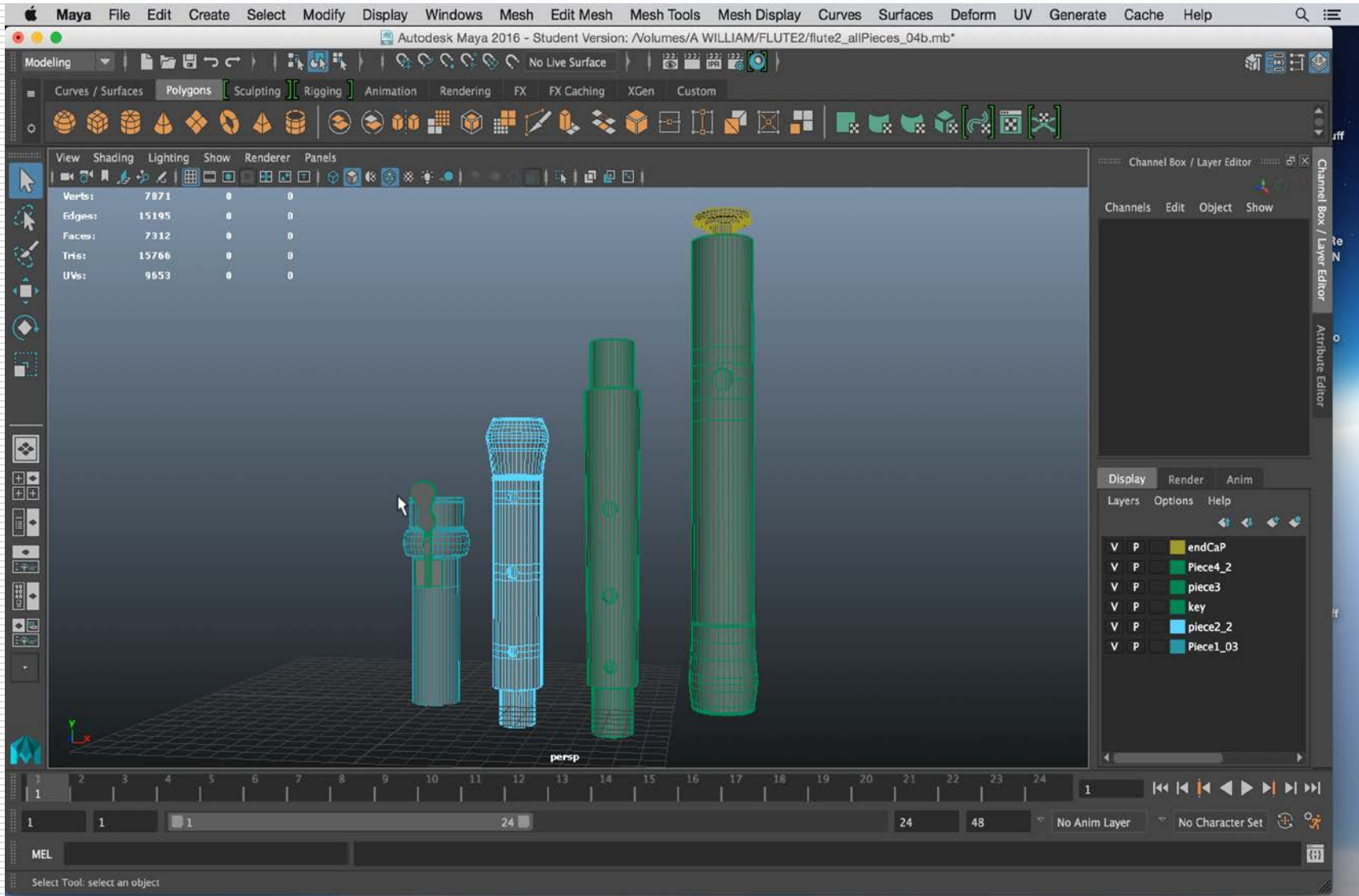


# Famous Flute Performer: Frederick the Great (of Prussia)

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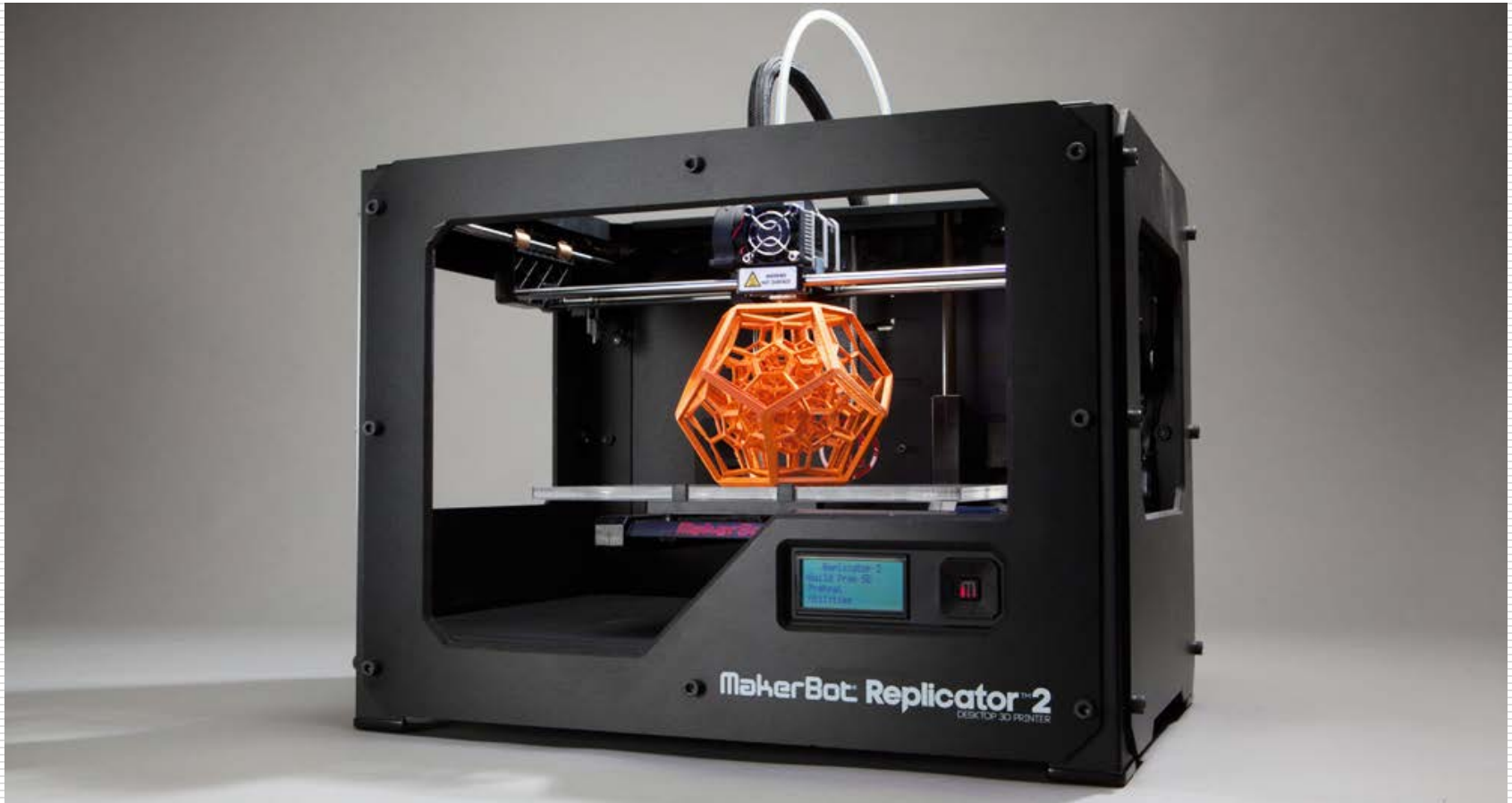


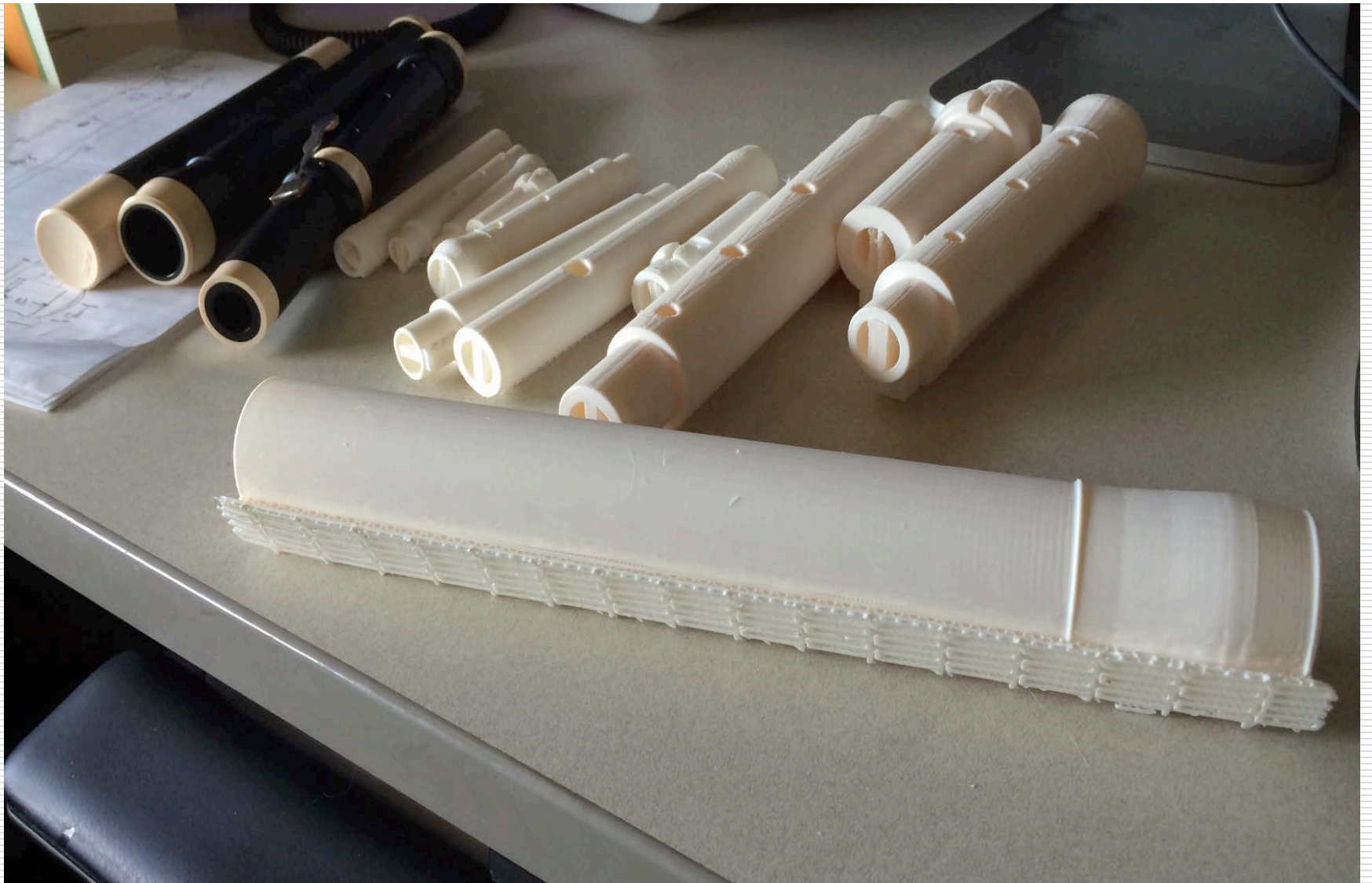




# MakerBot

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# For More Information...

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- ❑ School of Informatics and Computing, IUPUI, website:  
<http://soic.iupui.edu/>
- ❑ Legal Informatics website:  
<http://soic.iupui.edu/undergraduate/minors-certificates/legal-informatics/>
- ❑ For my biographical information, see  
<http://soic.iupui.edu/people/sara-hook/>



Any Questions?

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Thank you for attending today's presentation!  
Have a great day!

