Job Searching for Biomedical Engineering Students

Jay Bhatt-

Reference Library for Engineering

Daisy Larios-

Career Services Library Assistant

What job search strategies should I use?

- Networking
- Posted positions
- Directly targeting companies



How to find resources for your job search:

- In the Careers Collection
 Search in the library catalog!
 Browse the shelves!
 Ask a librarian.
- Research guides on the library website
 From the library website!
 From Daisy's website: library.drexel.edu/careers

What is networking? How can I meet other people in my field?

"Schmoozing is noticing people, connecting with them, keeping in touch with them- and benefiting from relationships with them."

Vault Guide to Schmoozing

- Friends, family, faculty
- Career fairs
- Join a professional association.

Find them using the

Encyclopedia of Associations

How do I find posted positions?

General job search websites:

- Indeed.com
- Simplyhired.com
- Craigslist

Biomedical Engineering specific sites:

• Find them on the <u>Biomedical</u> <u>Engineering Research Guide</u>

How do I get to Daisy's research guides???

There are two ways:

1. From the library website, go to Research Guides>Careers

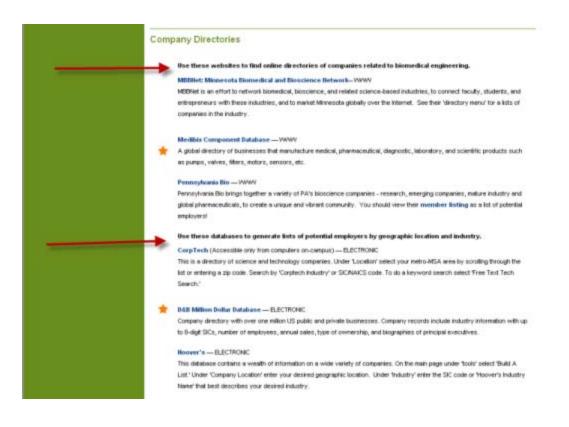


From Daisy's website <u>library.drexel.edu/careers</u>

How can I identify and target companies to begin my job search?

- Online company directories
- Library databases:
- D&B Million Dollar Database
- Corptech
- FDA
- Patent searching

Find online company directories and library databases on the Biomedical Engineering careers research guide:



What is FDA? What Information can we get from FDA site to help us prepare for job searching?

http://www.fda.gov/comments/regs.html

"FDA is the federal agency responsible for ensuring that foods are safe, wholesome and sanitary; human and veterinary drugs, biological products, and medical devices are safe and effective; cosmetics are safe; and electronic products that emit radiation are safe."

What FDA Regulates

FDA is the federal agency responsible for ensuring that foods are safe, wholesome and sanitary; human and veterinary drugs, biological products, and medical devices are safe and effective; cosmetics are safe; and electronic products that emit radiation are safe. FDA also ensures that these products are honestly, accurately and informatively represented to the public. Some of the agency's specific responsibilities include:

Biologics

- product and manufacturing establishment licensing
- safety of the nation's blood supply
- research to establish product standards and develop improved testing methods

Cosmetics

- safety
- labeling

Drugs

- product approvals
- · OTC and prescription drug labeling
- · drug manufacturing standards

Foods

- labeling
- safety of all food products (except meat and poultry)
- bottled water

Medical Devices

- premarket approval of new devices
- · manufacturing and performance standards
- tracking reports of device malfunctioning and serious adverse reactions

Radiation-Emitting Electronic Products

- radiation safety performance standards for microwave ovens, television receivers, diagnostic
- x-ray equipment, cabinet x-ray systems (such as baggage x-rays at airports), laser products,
- ultrasonic therapy equipment, mercury vapor lamps, and sunlamps
- accrediting and inspecting mammography facilities

Veterinary Products

- livestock feeds
- pet foods
- · veterinary drugs and devices

What FDA Does Not Regulate

Where do we find information on FDA's approval of drugs?

Drug Approval Reports:

http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm?fuseaction=Reports.ReportsMenu

"Drugs@FDA allows you to search for official information about FDA approved <u>brand name</u> and <u>generic drugs</u> and <u>therapeutic biological</u> products."



U.S. Food and Drug Administration



CENTER FOR DRUG EVALUATION AND RESEARCH



FAQ | Instructions | Glossary | Contact Us | CDER Home

Drug Approval Reports

1. Select a Report:

What's in Each Report?

All Approvals by Month

Approvals, tentative approvals, and supplements

Original New Drug Approvals (NDAs and BLAs) by Month

All applications approved for the first time during the selected month. Includes New Molecular Entities (NMEs) and new biologics ** Not all biologics are in Drugs@FDA.

Original Abbreviated New Drug Approvals (ANDAs) by Month

Generic Drug Approvals. Does not include tentative approvals

Supplements to New Drug Applications (NDAs and BLAs) by Month

Supplemental approvals to NDAs and BLAs

Tentative Approvals by Month

2. Select a month and year (mm/yyyy): 05/2009

Submit

Clear

Back to Top | Back to Previous Page | Back to Drugs@FDA Home

<u>Disclaimer</u>

CDER Home Page | CDER Site Info | Contact CDER | What's New @ CDER

FDA Home Page | Search FDA Site | FDA A-Z Index | Contact FDA | Privacy | Accessibility | HHS Home Page

FDA/Center for Drug Evaluation and Research Office of Training and Communications Division of Information Services Update Frequency: Daily

Find names of companies whose drugs have been recently approved by FDA.

http://www.accessdata.fda.gov/scripts /cder/drugsatfda/index.cfm?fuseactio n=Reports.MonthlyApprovalsAll

Example from May 2009 Drug Approval Report.

Find relevant information about the companies that you are interested in using various databases available from Our Library's web site

http://www.librarv.drexel.edu/resourc es/guides/careerguides/?page id=7



U.S. Food and Drug Administration



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VALEANT

Back to Reports Menu

Drug Name

and

FDA Appl. #

CETRAXAL

TREANDA

(NDA # 021918)

(NDA # 022249)

STROMECTOL

(NDA # 050742)

BUTORPHANOL

(ANDA # 078400) RISPERIDONE

(ANDA # 078516) **ANCOBON**

(NDA # 017001)

TARTRATE

All Approvals May 2009

This report lists both original approvals and supplemental approvals to NDAs, ANDAs, and BLAs* during the selected month. It includes tentative approvals and original approvals. Supplemental approvals may have occurred after the selected month. This page shows current information for the products listed.

Click on the Application Number to see all drug details, including the full approval history. * Not all biologics are in Drugs@FDA.

This report was produced on May 07, 2009.

Suppl. #

000

028

Click on a column header to re-sort the table. Select a different month: (mm/ww):

CIPROFLOXACIN

BENDAMUSTINE

BUTORPHANOL

IVERMECTIN

TARTRATE

RISPERIDONE

FLUCYTOSINE

HYDROCHLORIDE

Ingredients

Submit

<u>Company</u>	Approval Type	Approval Date
LABORATORIOS SALVAT	Approval	05/01/2009
CEPHALON	Control Supplement	05/01/2009
MERCK		05/01/2009
HIKMA FARMACEUTISA	Approvai	05/01/2009
ZYDUS PHARMS	Approval	05/01/2009

Labeling

Revision

05/04/2009

Where do we find information on FDA's approval of medical devices?

http://www.library.drexel.edu/blogs/englibrary/?p=204

Each product listing contains information about what medical uses the device is approved for, when it can be used, and when it should not be used.

See an example in the next slide.

Englibrary

February 13, 2009

Patents, FDA approved medical devices and Intellectual Property

-Patent Searching

United States Patent and Trademark Office (USPTO)

The USPTO offers web access to bibliographic and full-text patent databases. These databases provide full-text of patents from 1976 to the present and full page images from 1790 to the present.

Biomedical Devices

FDA documents for regulated industry

FDA's Search Guidance Database

Latest FDA Medical Devices approvals

FDA Medwatch-Medical Product Safety Information

FDA Medical Devices - Stent

FDA - Center for Devices and Radiological Health - Index of Consumer Topics

510(K) overview

FDA Device Advice

FDA Approval Process

FDA Drug Approval Process

A Roadmap to Medical Device and Instrumentation Pedigree

Just the Facts - A series of FDA information sheets (includes fact sheets on drugs and medical devices among others)

FDA - Search Medical Devices in releasable 501(k) database

Cardiovascular Device Liability week

Medical Device Law Weekly

Devices@FDA - a catalog of approved medical devices

Medical Device safety Guidelines

Testimony on FDA's Medical Device Program by Michael Friedman

Medical Device Reporting

FDA-Office of In Vitro Diagnostic Device (OIVD) Evaluation

IEC 60601-1 Primer, by Leonard Eisner, Robert M. Brown and Dan Modi, as published in "Medical Device

and Diagnostic Industry

Medical Devices Directive

How would this help in finding companies whose devices were approved?

The products listed include some of the newest medical technology available.

Each product listing contains information about what medical uses the device is approved for, when it can be used, and when it should not be used

Click on 'Text' to get more information. Premarket Approval information about the product is usually provided in the document.

Permission to begin commercial distribution of the device in accordance with the conditions described is also given in this document.

Find relevant information about the companies that you are interested in using various databases available from Our Library's web site

http://www.library.drexel.edu/resources/ guides/careerguides/?page_id=7



Recently Approved Devices



The products listed on this page include some of the newest medical technology available. Each product listing contains information about what medical uses the device is approved for, when it can be used, and when it should not be used. This information, along with information from your doctor and other sources, can help make you an informed participant in your health care.

Subscribe to Email
Updates on Recently
Approved Devices

List by Approval Date - List by Device Name - List by Category of Device

Device Name		Category	Approv.Date	Links
ARCHITECT® CORE Reagent Kit, Calibrator and Controls		Hepatitis	4/10/2009	Text
Medtronic® Attain Ability™ Model 4106 Lead		Pacemaker	4/7/2009	Text
Cervista™ HPV 16/18		HPV - Human Papillomavirus, Reagents	3/12/2009	Text •
CervistaTM HPV HR and GenfindTM DNA Extraction Kit		HPV - Human Papillomavirus, Reagents	3/12/2009	Text
FC2 Female Condom		Condoms	3/10/2009	Text
Synvisc-One (hylan GF-20)			2/26/2009	Text
Reclaim™DBS™Therapy for OCD	Q.	Brain Stimulator	2/19/2009	Text
LifeStent FlexStar and FlexStar XL Vascular Stent		Vascular	2/13/2009	Text
NAVISTAR® THERMOCOOL® and EZ Steer THERMOCOOL® Nav Imgated Deflects Catheter for Treatment of Paroxysmal Atrial Fibrillation	able Diagnostic/Ablation	Catheters	2/6/2009	Text
XACT® Soft Acrylic UV Light-Absorbing Posterior Chamber Intraocular Lens		Intraocular Lens (IOL)	2/2/2009	Text
TECNIS® Multifocal Foldable Silicone and Acrylic Intraocular Lenses		Intraocular Lens (IOL)	1/16/2009	Text
Express® SD Renal Monorail® Premounted Stent System		Renal Stent	12/11/2008	Text
E-LUMINEXX Vascular Stent		Vascular	12/4/2008	Text
BIOFINITY® (comfilcon A) Soft Contact Lens for Extended Wear		Contact Lenses	11/19/2008	Text
CORAS TaaMan HCV Test For IIse With the CORAS AmpliPren Instrument and the COF	RAS TanMan Analyzer or the	Henatitis C Test Kit	10/30/2002	Text

How do I find out whether the companies that I found have received any patents or not?

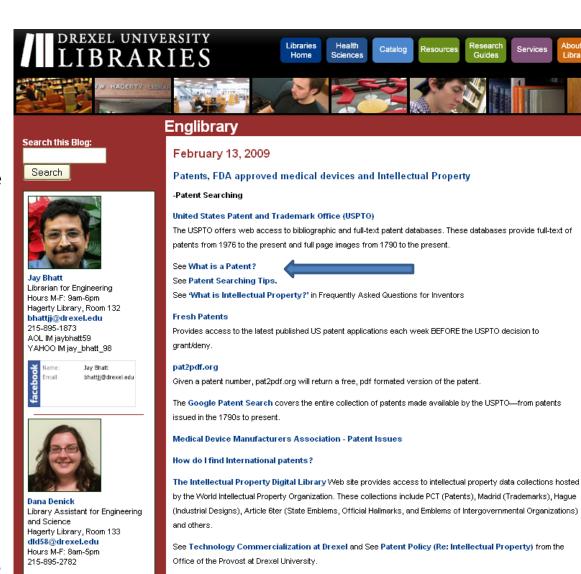
One more important step involves finding out whether companies whose drugs or medical devices were approved, have received any patents or not. Learning more about their inventions may help in making informed decisions on whether you want to consider working for them.

In the previous example, we saw a pacemaker from Medtronic got recent approval.

Let us see if Medtronic has received any patents or not.

Go to

http://www.library.drexel.edu/blogs/englibrary/?p=204



Patent Protection Strategies: Maximizing market exclusivity (Note: Search in 'Business Insights' database

USPTO PATENT FULL-TEXT AND IMAGE DATABASE **Advanced**

Bottom

Pat Num

View Cart

Help

Finding patents

Search for patents issued to Medtronic in US Patent office database

Searching US Patent Collection...

Results of Search in US Patent Collection db for:

AN/medtronic: 3872 patents. Hits 1 through 50 out of 3872

http://patft.uspto.gov/

Try 'Medtronic' in 'Assignee Name' field.

You will find several patents issued to Medtronic.

Use the Patent number in http://pat2pdf.org to find the full text patent in the PDF form.

See if those inventions capture your interest in applying for jobs in those companies.

Next 50 Hits

Jump To

Befine Search AN/medtronic

PAT. NO.

- 1 7,539,546 Lectromagnetic interference immune pacing/defibrillation lead
- 7,539,545 Electromagnetic interference immune pacing/defibrillation lead
- 3 7,539,540 Troubleshooting methods for a medical system including implantable components

Home

Quick

Next List

- 4 7.539.007 Methods and structures for electrically coupling a conductor and a conductive element comprising a dissimilar material
- 5 7.539,004 Filtered feedthrough assembly and method of manufacture
- 6 7.538.563 Determination of equivalent series resistance
- 7,538,163 Modification of thermoplastic polymers
- 8 7,537,569 Method and apparatus for detection of tachyarrhythmia using cycle lengths
- 9 7,537,474 Lead receptacle and pin frame assembly
- 10 7.537,245 T Strain relief device and connector assemblies incorporating same
- 11 7.536.224 T Method for elimination of ventricular pro-arrhythmic effect caused by atrial therapy
- 12 7.534.225 Degassing method and system
- 13 7.532.939 T Active fixation medical lead

What is Patent Classification Schedule? How does it help in searching for patents?

Patents are classified (organized) in the U.S. by a system using a 3 digit class and a 3 digit subclass to describe every similar grouping of patent art. A single invention may be described by multiple classification codes.

-- see Manual of Patent Classification

- What is a classification schedule?
 - Patents are classified (organized) in the U.S. by a system using a 3 digit class and a 3 digit subclass
 - They describe every similar grouping of patent art.
 - A single invention may be described by multiple classification codes
 - For example, Class:424/9.1; 424/1.11; 424/1.65; 424/600; 424/601; 424/9.2; 514/7
- See <u>Classification Help</u> and <u>Glossary</u>
- Search Patents

Find patents about controlled drug delivery in cancer chemotherapy

Using <u>US Patents-</u> Advanced Feature

ABST/(Cancer and Drug and Delivery)

ABST/(controlled and drug and delivery) and (cancer and chemotherapy)

ABST-Abstract field that contains brief summary of patent invention

The abstract contains many of the relevant words of a patent

United States Patent 6,541,021
Johnson, et al. April 1, 2003

Devices and methods for pain management

Abstract

The invention features devices and methods for the systemic *delivery* of fentanyl or a fentanyl congener (e.g., sufentanil) to treat pain. In the present invention, a *drug* formulation comprising fentanyl or a fentanyl congener is stored within a *drug delivery* device (e.g., contained in a reservoir or impregnated within a matrix within the *controlled drug delivery* device). The *drug* formulation comprises an amount of *drug* sufficient for treatment and is stable at body temperatures (i.e., no unacceptable degradation) for the entire pre-selected treatment period. The *drug delivery* devices store the *drug* formulation safely (e.g., without dose dumping), provide sufficient protection from bodily processes to prevent unacceptable degradation of the formulation, and release the *drug* formulation in a *controlled* fashion at a therapeutically effective rate to treat pain. In use, the *drug delivery* device is implanted in the subject's body at an implantation site, and the *drug* formulation is released from the *drug delivery* device to a *delivery* site. The *delivery* site may be the same as, near, or distant from the implantation site. Once released at the *delivery* site, the *drug* formulation enters the systemic circulation and is transported to the site of action in the body to modulate the pain response (e.g., the brain or other pain sensory location).

Inventors: Johnson; Randolph Mellus (Half Moon Bay, CA), Theeuwes; Felix (Los Altos Hills, CA)

Assignee: Durect Corporation (Cupertino, CA)

Appl. No.: 09/522,535 Filed: March 10, 2000

Current International Class:

Current U.S. Class:

424/422; 424/423; 424/424; 424/425; 424/449; 424/450; 424/473; 424/484; 514/282; 604/890.1; 604/891.1; 604/892.1

A61K 47/26 (20060101); A61K 47/14 (20060101); A61K 47/10 (20060101); A61K 31/4523 (20060101); A61K 9/00 (20060101); A61K 31/4535 (20060101); A61K 31/4468 (20060101); A61F 013/00 (); A61F 002/00 (); A61K 009/22 (); A61K 009/24 (); A61N 043/42 ()

Field of Search: 424/449,443,423 514/12

Search patents in a particular class/subclass	- A II 423 - A II 424 A II 425 A II 426 - A II 427	 Surgical implant or material Membrane or diffusion barrier Diffusion barrier is matrix Errodable, resorbable, or dissolving Ocular
From USPTO site, go to <u>Class Numbers Only</u> Page	A	 Bioerrodable, resorbable, or dissolving Contact lens Vaginal, urethral, uterine Tampon IUD or ring Depot, pellet, matrix, or suppository
(Path: Patents > Guidance, Tools, and Manuals > Classification	- A	Mucosal (e.g., nasal, etc.) Mouth Mal, rectal (e.g., suppositories, etc.) Otic Specially adapted for ruminant animal
(US Classes by Number Menu)	A	 Food or edible as carrier for pharmaceutical Candy, candy coated or chewing gum Chewable tablet or wafer Animal food
Click on Classification	- A B 443 A B 444 - A B 445 A B 446	 Web, sheet or filament bases; compositions of bandages; or dressings with incorporated medicaments Resorbable by the body Dressings Medicated gauze pads
Search for Class/Subclass 424/422 for the patent patent found	- A	 Bandages with incorporated medicaments Pressure sensitive adhesive means Transdermal or percutaneous Liposomes
Click on 'P' to get all patents in class 424/422	- A	 Capsules (e.g., of gelatin, of chocolate, etc.) With claimed designated perfecting feature in contents (e.g., excipient, lubricant, etc.) Telescoping two piece With tamperproof, locking, or sealing feature Containing emulsions, dispersions, or solutions Gelatin
Another tip: Nanotechnology related patents are in class 977. Since it is an interdisciplinary area, use both 'Keyword' searching as well as 'Class/subclass' searching for comprehensive coverage.	- A II 457 - A II 458 - A II 460 A II 461 A II 463 - A II 464	 Sustained or differential release Containing discrete coated particles pellets, granules, or beads Organic coatings Containing proteins or derivatives thereof (e.g., gelatin, etc.) Containing polysaccharide (e.g., cellulose sugars, etc.) Containing solid synthetic polymers Coated capsules Tablets, lozenges, or pills

How do I keep current with new information available from FDA?

http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfTopic/cdrhnew.cfm

Different types of alerts and RSS feeds available

For example,

What's New: Center for Devices and Radiological Health FDA Patient Safety News MedWatch Safety Alerts



How would these alerts help me in evaluating Companies?

Center for Devices an Radiological Health often provides alerts on Medical Devices recalls.

Find the name of the Company whose Medical device has been recalled.

For example,

Date Recall

Initiated: April 27, 2009 Product:

Triage Cardiac Panel, Catalog No. 97000HS, Lot #W44467B, shipped as 25 individually pouched devices per kit box. (This recall is limited only to this catalog and lot number).

Biosite Inc.

9975 Summers Ridge Road San Diego, California 92121

Search for more information about that company through other sources using http://www.library.drexel.edu/resources/guices/careerguides/?page_id=7



Food and Drug Adminstration (FDA): CDRHNew

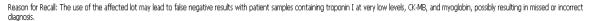
Items added to the FDA's Center for Devices and Radiological Health website within the last month.



Federal Register: Agency Information Collection Activities; Submission for Office of Management and Budget Review; Comment Request; Emergency Shortages Data Collection System (formerly " Emergency Medical Device Shortages Program Survey")
Fridav. May 08, 2009 12:00 AM

...Subsequent to the events of September 11, 2001, and as part of broader counter-terrorism and emergency preparedness activities, CDRH began developing operational plans and interventions that would enable CDRH to anticipate and respond to...

Class I Medical Device Recall: Biosite Incorporated, Triage Cardiac Pane Thursday, May 07, 2009 12:00 AM



Consumer Information on: REPEL-CY® Bioresorbable Adhesion Barrier - P070005

Thursday, May 07, 2009 12:00 AM

REPEL-CV Bioresorbable Adhesion Barrier is a single use, synthetic, bioresorbable polymeric film composed of poly-lactic acid (PLA) and polyethylene glycol (PEG).

Federal Register: Implementation of Post-Approval Studies for Medical Devices; Public Workshop

Wednesday, May 06, 2009 12:00 AM

The purpose of the workshop is to facilitate discussion among FDA and other interested parties on issues related to the implementation of Post-Approval Studies for medical devices,

CDRH White Oak Move

Monday, May 04, 2009 12:00 AM

The Center for Devices and Radiological Health (CDRH) will be relocating to the FDA White Oak campus located at 10903 New Hampshire Avenue, Silver Spring, MD 20993 this summer.

Federal Register: Pediatric Device Consortia Grant Program

Monday, May 04, 2009 12:00 AM

The FDA is announcing the availability of grant funds for the support of the Office of Orphan Products Development (OOPD) Pediatric Device Consortia Grant Program (PDCGP).

PMA Final Decisions for March 2009

Friday, May 01, 2009 12:00 AM

These are Premarket Approvals (PMA), Product Development Protocols (PDP), Supplement and Notice Decisions for February 2009.

Neurological Devices Panel Advisory Meeting, May 14, 2009 - Waivers for Conflicts of Interest

Thursday April 30, 2009 12:00 AM

Okay, so I've identified some companies as potential employers.....

now what???

Next Steps

For tips & resources see:

Be Proactive!!

Interviewing research guide

- Research the company
 - Company website
 - Library databases
- Identify the preferred way to submit your resume and cover letter
- Contact the company
- Follow up!

What if I'm an international student? How do I know if a company sponsors H1-B visas?

See the Guide for International Students:

Guide for International Students									
			_						
	Selected Web Resources	Books							
	Directories								
Selected Web Resources									
*	★ Foreign Labor Certification Data Center: H1-B Disclosure Data—VWWV								
	Use this site to identify employers that have sponsored H1-B visas in the past. Search by company name								
	or state.								
*	H-1B Visas: The Biggest Users — VWWV								
	Business Week's list of the 200 companies that recieved the most H-1B visa petition approvals in 2007.								

Questions?

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