Administration/Management, Dissemination and Training

Administration/Management, Dissemination and Training

Greg Jones
**Management Structure of CIBC**

**Administration/Management, Dissemination and Training**

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**Center Directors**

- Chris Johnson
- Rob MacLeod
- Ross Whitaker

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**External Advisory Board**

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**Executive Committee**

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**TRD Directors**

- Chris Johnson
  - Visualization
- Rob MacLeod/Dana Brooks
  - Simulation and Estimation
- Ross Whitaker
  - Image and Geometric Analysis

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**Component and Group Directors**

- Chris Johnson
  - Administration/Management
- Rob MacLeod/Ross Whitaker/Dana Brooks (NEU)
  - Training component
- Liz Jurrus
  - Technical Group (Infrastructure and Dissemination components)
- Liz Jurrus/Rob MacLeod/Ross Whitaker/Dana Brooks
  - Collaboration and Service component

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**DBP Leads**

- Chris Johnson
- Rob MacLeod
- Dana Brooks
- Ross Whitaker
- Chris Butson
- Chuck Hansen

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**Component and Group Directors**

- Greg Jones
  - Executive Administrator
- Liz Jurrus
  - Technical Manager
Dissemination

Background:

Methods of Dissemination of CIBC Results:

- Website
- Publications
- Software Distribution
- Workshops/Tutorials
- Site Visits
- Conference Booths
The CIBC Website

The NIH/NIGMS Center for Integrative Biomedical Computing

The Center for Integrative Biomedical Computing (CIBC) is dedicated to producing open-source software tools for biomedical image-based modeling, biomedical simulation and estimation, and the visualization of biomedical data. The Center works closely with software users and collaborators in a range of scientific domains to produce user-optimized tools and provides advice, technical support, workshops, and education to enhance user success. Biological projects and collaborations drive our development efforts, all with a single unifying vision: to develop the role of image-based modeling and analysis in biomedical science and clinical practice.

BTR Portal Software Dissemination
A one stop shop for all innovative technology resources supported by the NIGMS and NIBIB, categorized, updated, and maintained by participating centers.

Upcoming Events

- Coming Soon: SciRun 5.0
  - Sign up for release information

- July 13-23, 2015
  - Summer Course on Image-based Biomedical Modeling (IBBM)

CIBC Software Suite

- CIBCSciRun
- CIBCSeg3D
- CIBCShapeWorks
- CIBCImageVis3d
- CIBCFluoRender
- CIBCmap3d
- CIBCCleaver

- Simulation
- Segmentation
- Analysis
- Visualization
- Visualization
- Visualization
- Meshing
Since submission of the proposal:

Journal Publications:

...8 papers, 6 published with DBP partners or collaborators...

• PLOS ONE
• Journal of Cardiovascular Electrophysiology
• Journal of Investigative Dermatology

Conference Proceedings:

...4 conference proceedings 1 with DBP partners/collaborators
Proposals since Center Proposal:

...13 proposals

- 8 NIH (all submitted with CIBC DBP partners/collaborators)
- 1 NSF/NIH (submitted with CIBC collaborator)
- 2 NSF (both enabled by CIBC)
- Foreign Agency
- Seed grant at NEU with DBP partner
SCIRun:
• Alpha release: BrainStimulator

Cleaver
• Cleaver2 made public
• Cleaver2.1 planned for Feb/March

FluoRender
• Release of 2.15
• New manual released
• Large data version released to DBP partner
# Software - Downloads

**Administration/Management, Dissemination and Training**

<table>
<thead>
<tr>
<th>Software</th>
<th>Total downloads</th>
<th>Downloads in 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIRun</td>
<td>44,531 (since 2004)</td>
<td>3,372</td>
</tr>
<tr>
<td>Seg3D</td>
<td>44,436 (since 2007)</td>
<td>5,724</td>
</tr>
<tr>
<td>ImageVis3D</td>
<td>27,077 (since 2008)</td>
<td>4,981</td>
</tr>
<tr>
<td>Mobile (App Store)</td>
<td>40,795 (since 2009)</td>
<td>7,040</td>
</tr>
<tr>
<td>map3d</td>
<td>7,799</td>
<td>790</td>
</tr>
<tr>
<td>ShapeWorks</td>
<td>3,625 (since 2009)</td>
<td>475 (w/o NITRC downloads)</td>
</tr>
</tbody>
</table>
Software Distribution

Administration/Management, Dissemination and Training

Seg3D

map3d

SCIRun
Montage Matters: The Influence of Transcranial Alternating Current Stimulation on Human Physiological Tremor

Mehta et al., (Brain Stimulation, Volume 8, 2015)

Combination of Seg3D and the Brain Extraction Tool (BET) from FMRIB (Univ. of Oxford and SCIRun)

Live cell immunogold labelling of RNA polymerase II

Orlov, et. al, (Scientific Reports 5, Article number: 8324)

Seg3D used to both segment and visualize
Groups Using CIBC Software

Administration/Management, Dissemination and Training

Cone of Influence

DBP Collaborators

Related Scientific Community (service)

Breadth of Influence
CIBC-Enabled Publications

Administration/Management, Dissemination and Training

2014 and 2015

- **32 new publications**
- **25 new publications**
- **19 new publications**
- **9 new publications**
New Repository System

Administration/Management, Dissemination and Training

#scirun5

- brig 1:11 PM
  the geom not being updated in view scene is a development stumbling block

- dwhite 1:17 PM
  no kidding

- ayla 1:25 PM
  also, blackbody colormap looks odd

- brig 1:26 PM
  how so

- ayla 1:26 PM
  blackbody_cube_scirun5.tiff

.attachments
- 814KB TIFF in #scirun5 • 1 comment • Open original

lizutah online
Social Media

Administration/Management, Dissemination and Training
Background: Modes of Training

• Workshops/Tutorials
• Students and Post-Doctoral Fellows
• CIBC Seminars
• Broadening the Community
• Visiting Collaborator
Training (and Dissemination)

Administration/Management, Dissemination and Training

“This course offers field-specific expertise and hands-on experience solving bioelectric or biomechanical problems that arise in current biomedical research and clinical practice.”
“This course offers field-specific expertise and hands-on experience solving bioelectric or biomechanical problems that arise in current biomedical research and clinical practice.”

Hello Seg3D team! This is Paul Holcomb, West Virginia University graduate student and alumnus from the 2014 IBBM course. I have been busy converting all of my fellow segmenters and modelers over to Seg3D, and it's been a great asset to us in segmenting and analyzing our EM data.

In our data sets, we tend to deal with multiple masks for a single object -- for example: the nucleus, cell body, and organelles of a single cell...
Training (and Dissemination)

Administration/Management, Dissemination and Training

Natalia Trayanova, PhD
Murray B. Sachs Professor, Johns Hopkins University

Dimitris N. Metaxas, Ph.D
Distinguished Professor of Computer Science, Rutgers University

Jeffrey W. Holmes, Ph.D, MD
Professor of Biomedical Engineering and Medicine, University of Virginia
Students and Post-Docs

Administration/Management, Dissemination and Training

Postdoctoral Fellows:

• Jeroen Sinstra—Research Staff Scientist, Numira Biosciences, Inc.
• Josh Levine—Assistant Professor of Computing Science, Clemson University
• Erik Anderson—Research Scientist, EGI
• Paul Rosen – Research Assistant Professor of Computer Science and SCI Institute
• Yaniv Gur – IBM
• Moritz Dannauer – SCI Postdoctoral fellows
• Shireen Elhabian – SCI Postdoctoral fellow
• Shankar Sastry – SCI Postdoctoral fellow

Graduated PhD Students

• Fangxiang Jiao – TGS
• Burak Erem – Postdoc, Boston Children’s Hospital
• Dafang Wang – Post Doctoral Fellow, Johns Hopkins University
• Sarah Geneser—Medical Physics Resident, UCSF
• Sila Kurugol - Postdoc at BWH
• Josh Cates—Research Scientist CARMA and SCI Institute
• Darrell Swenson – L3
• Greg Gardner – Medical School
• Jonathan Bronson – Google
• Zhisong Fu - SYSTAP, LLC
Students and Post-Docs

Graduate Students
- Jaume Coll Font – Ph.D. student at NEU
- Jess Tate - Ph.D. student at SCI
- Shridharan Chandramouli – Ph.D. student at SCI
- Jessie France – Ph.D. student at SCI
- Alexandra Warner – Ph.D. student at SCI

Undergraduate Students
- Max Hansen
- Karli Gilette
- Rebecca Pennock
- Thomas Robertson
- Myron Lance
- Andrew Miller
- Alex Gerber
- Minna Wang
- Ahrash Poursaid
- Kenneth Louie
- Spencer Frisby
- Benjamin Larson
- Collin Tate
Recent Seminars

**Visualization Seminar:** Janet Iwasa presents Enabling Biomedical Research through Molecular Animation

**Imaging Seminar:** Richard Kirby presents Variational Method for Estimating Depth and Velocity Using a Dual Focal Length Coaxial Camera Rig and Large Displacement Optical Flow

**SCI Seminar:** Faculty Candidate Alexander Lex presents Enabling Scientific Discovery through Interactive Visual Data Analysis

**Imaging Seminar:** Miaomiao Zhang presents Fast Diffeomorphic Image Registration

**Ph.D. Thesis Defense:** James Fishbaugh presents Spatiotemporal Modeling of Anatomical Shape Complexes

**Imaging Seminar:** Christopher R. Butson presents Doing the right thing when you are left in the dark: a practical review of left/right orientation in medical imaging

**Visualization Seminar:** Bei Wang presents Vector Field Visualization, Feature Tracking and Simplification based on Robustness - Reflections and Future Directions for the Study of Dynamic Systems

**SCI Seminar:** Danila Potyagaylo presents Model Parameterization and Regularization Approaches for the Inverse Problem of ECG

**Imaging Seminar:** Praful Agrawal presents Saliency based mass detection from screening mammograms

**Visualization Seminar:** Colleen Farmer presents The Loopy Vertebrate Lung

**Visualization Seminar:** Sidharth Kumar presents Efficient I/O and Storage of Adaptive Resolution Data

**Visualization Seminar:** Alex Bigelow presents Reflections on How Designers Design With Data

**Imaging Seminar:** Prateep Mukherjee presents Generating Distance Transforms for 3D surfaces using Face Index Maps

**SCI Seminar:** Avantika Vardhan presents Ph.D. Proposal - Quantification and spatiotemporal modeling of image appearance from multimodal, longitudinal MRI: Application to characterization of early brain development in clinical pediatric neuroimaging studies.

• ......
Recent and Coming Seminars

Administration/Management, Dissemination and Training

Includes a variety of outside speakers...

**George Karniadakis**, The Charles Pitts Robinson and John Palmer Barstow Professor of Applied Mathematics, Brown University
From Stochastic Modeling to Fractional Modeling - New Tools in Large-Scale Simulations

**Stan Osher**, Professor of Mathematics & Director of Applied Mathematics, University of California, Los Angeles

**Peter Bickel**, Professor of Statistics, U.C. Berkeley

**Grace Wahba**, UIJ Schoenberg-Hilddale Professor of Statistics, Professor of Biostatics and Medical Informatics, University of Wisconsin
Outreach/Training - The Next Gen
Administration/Management, Dissemination and Training

Today’s Tools
Tomorrow’s Scientists

Princeton
Lewis & Clark
Senior
Senior
CIBC

Organization, Dissemination and Training