Welcome Back

Boston CIBC Workshop 2009
Northeastern University
January 18 and 19 2009
Day Two

CIBC

Center for Integrative Biomedical Computing

Goals

- Produce cutting edge software for biomedical researchers
- Develop new techniques and algorithms in image processing, geometric modeling, simulation and visualization
- Carry out original research in segmentation, bioelectric field simulation, and visualization

NCRR and P41's: BTRC program

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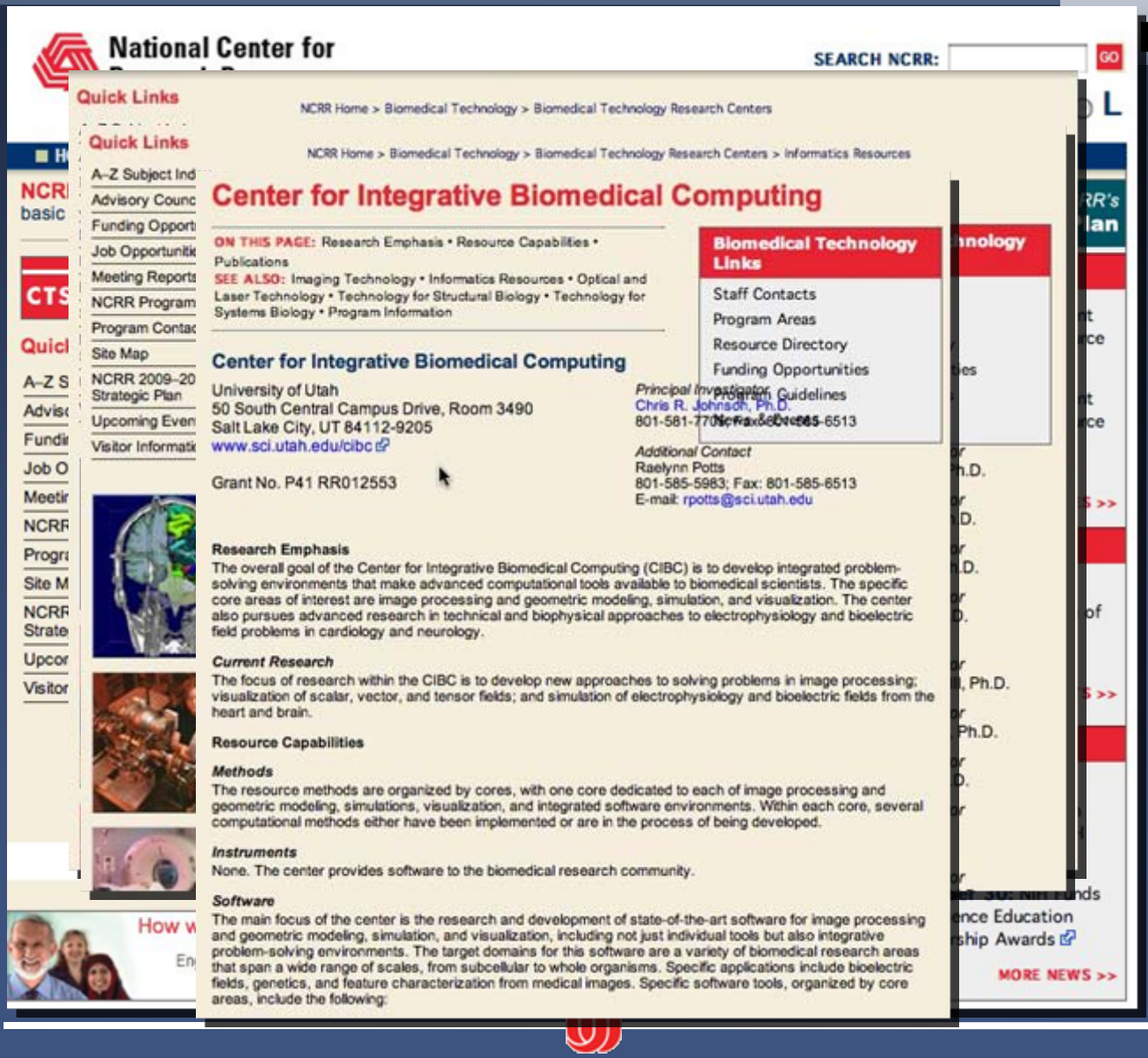
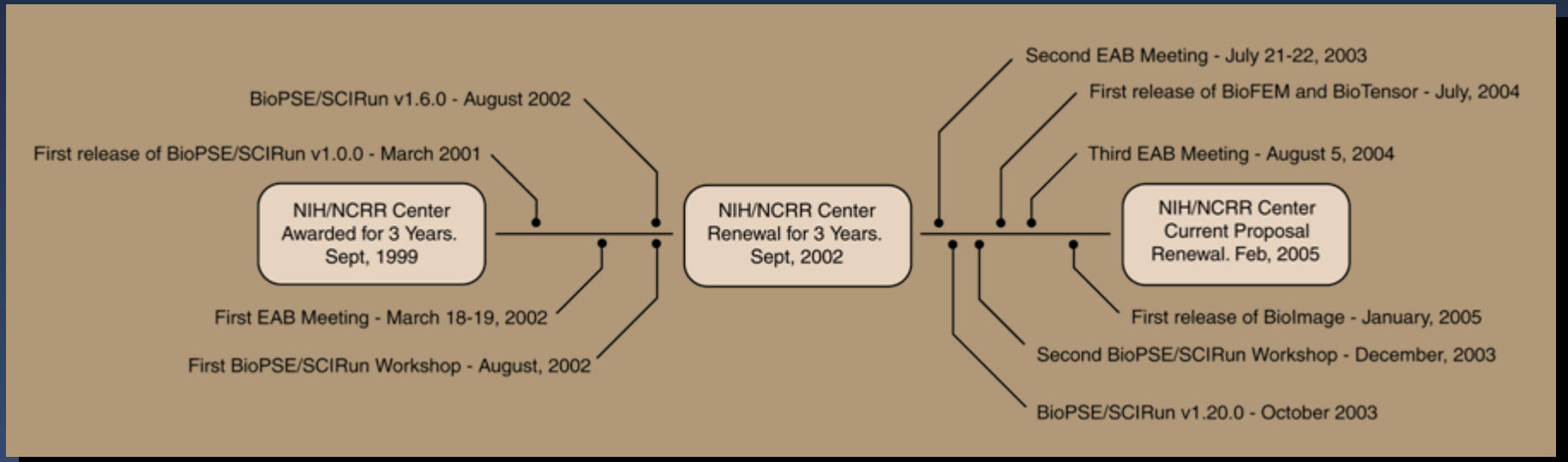


SCI INSTITUTE

CIBC

History of the Utah NCRR P41

Introduction



- Software development
- Applications focus on bioelectric fields
- Driven by collaborations
- Renewal submission: May, 2009

CIBC Organization

Technical Cores

- Image processing and geometric modeling
- Mathematical modeling and simulation
- Visualization
- Biomedical Problem Solving Environment: BioPSE

Some changes in the works

- Core on computation (GPGPU's etc.)

CIBC Software Goals

Extend SCIRun BioPSE

- More functionality
- More portability
- More modularity

Build bridges

- To libraries
- To programs
- To data sources

Support Collaborations

- Dedicated solutions leading to
- Generalized application programs

Collaborations

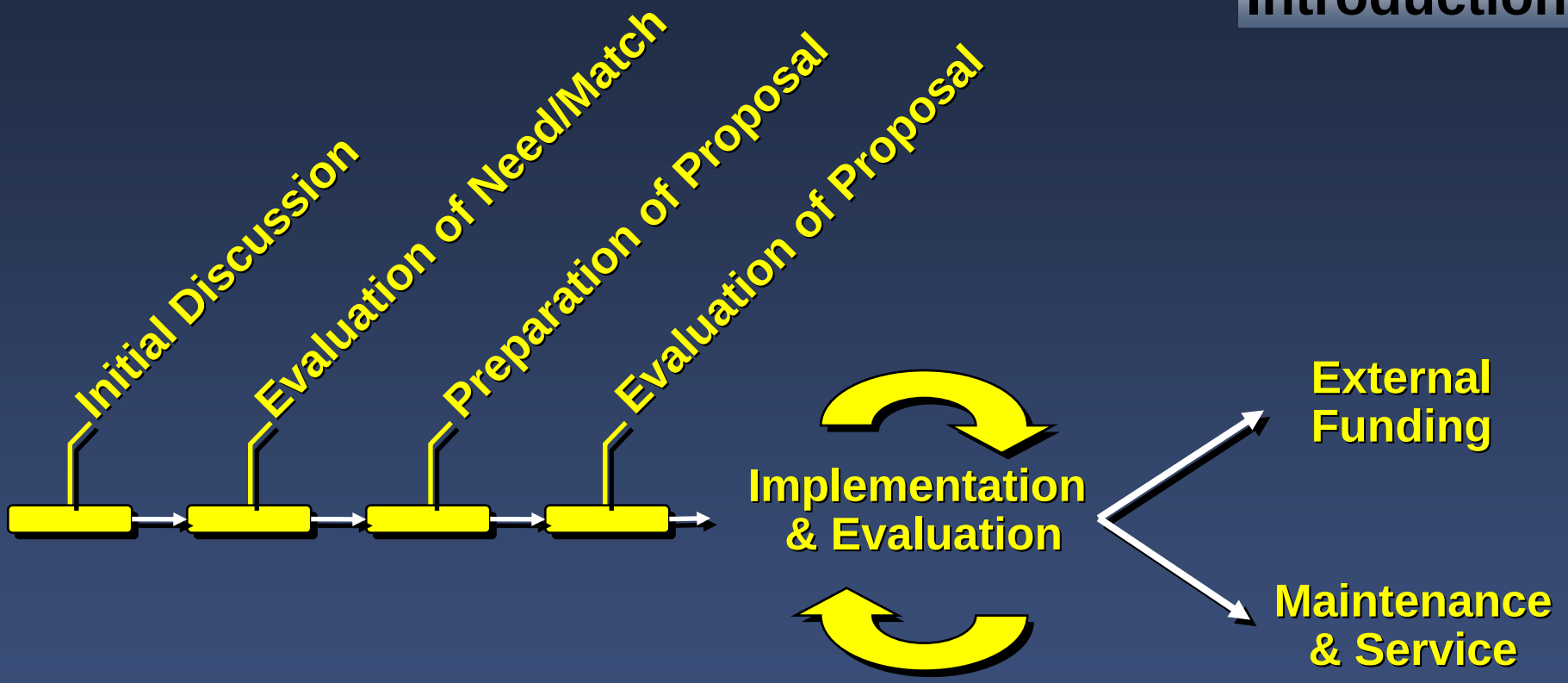
Essential to a P41

- Ensure relevance
- Provide motivation, guidance and feedback
- Metric for success (and renewal)

Challenge for a P41

- Cannot receive funding
- Must remain motivated
- Must amplify impact of the Center

Collaboration Lifecyle



Concept and Specification

Research and Development

Completion

Collaboration Management

Create collaboration hierarchy

- Primary and secondary: dynamic

Link to cores

- Identify common needs across collaborations
- Match software to users (functionality, interface, platform)

Communicate

- Identify key people
- Create PI-led collaboration teams
- Establish regular meetings/visits

Current Primary Collaborators

1) Visualization and analysis of small-animal images
   - Mario Capecchi Lab, Uof U
   - Charles Keller, CCRI, UTHSCSA
2) Microscopy image analysis and visualization
   - Mark Ellisman, NCMIR, UCSD
3) Multiscale electrophysiological modeling
   - Craig Henriquez Lab, Duke University

Current Primary Collaborators

4) Epilepsy localization via EEG source using MRI imaging
   - Scott Makeig, UCSD, and Greg Worrell, Mayo Clinic
   - Simon Warfield, Children's Hospital Boston
5) Simulation of cardiac defibrillation non-standard settings including pediatrics
   - John Triedman, Children's Hospital Boston
   - Matt Jolley, Stanford

Current Secondary Collaborators

Bioelectric Fields

- David Isaacson (RPI)
- Dirar Khoury (Baylor)
- Cameron MacIntrye (Cleveland Clinic)
- Bruno Taccardi (UofU)

Image-based Anatomy

- John Bridge (UofU)
- George Chen (MGH)
- Robert Marc (UofU)
- Vasilis Ntziachristos (TUM)
- Stephen Wong (Methodist Hospital)
- Chi-Bin Chein (UofU)
- Paul Thompson (UCLA)

Current Secondary Collaborators

Multiscale Tissue Modeling

- Alonso Moreno (UofU)
- Chuck DiMarzio (NEU)

Technical Exchange

- Mark Ellisman (UCSD)
- Ron Kikinis (SPL)
- Les Loew (UCHC)
- CF Westin (SPL)
- Carsten Wolters (Münster)
- Al Johnson (Duke)
- Andrew McColloch (UCSD)

Key Center Personnel

PI's

- Chris Johnson
- Rob MacLeod
- Ross Whitaker
- Dana Brooks

Technical Management

- Jeroen Stinstra
- Dave Weinstein

Administrative Team

- Deb Zemek
- Greg Jones

Key Center Personnel

Staff Scientists/PostDocs

- Jeroen Stinstra
- Allen Sanderson
- Jens Krüger

Software Engineering

- Jeroen Stinstra
- Ayla Hlan

Developers

- Jeroen Stinstra
- Ayla Khan
- Tom Fogal

Students

- Josh Blauer (Afib Imaging)
- Darrell Swenson (Meshing/Ischemia)
- Burak Erem (Inverse problems)
- Josh Cates (Shape statistics)
- Sila Kurugol (Segmentation of skin and esophagus)

Media Team

- Erik Jorgensen
- Chems Touati
- Nathan Galli

Purpose of the Workshop

Describe our software

Use our software

Improve our software

Develop relationships

Boston Workshop Personnel

PI

- Dana Brooks

Workshop Leader / Staff Scientist

- Jeroen Stinstra

Developer Team

- Ayla Khan
- Tom Fogal

PhD Student Teaching Assistants

- Burak Erem
- Sila Kurogol

Schedule Today

Monday, 19th January (SCIRun workshop):	
9:00 - 9:30	**Overview CIBC Center & Software Download** (Dana Brooks & Ayla Khan)
9:30 - 10:00	**SCIRun Basics Part 1** (Jeroen Stinstra)
10:00 - 10:20	**SCIRun Lab 1** (Ayla Khan)
10:20 - 10:40	- Break -
10:40 - 11:10	**SCIRun Basics Part 2** (Jeroen Stinstra)
11:10 - 12:00	**SCIRun Lab 2** (Ayla Khan)
12:00 - 1:00	- Lunch Break -
1:00 - 2:00	**SCIRun: Creating a model in SCIRun** (Jeroen Stinstra)
2:00 - 2:20	- Break -
2:20 - 4:00	**SCIRun Lab 3** (Jeroen Stinstra & Ayla Khan)

Introduction

Memo (to self)

Please turn cell phones/pagers on vibrate