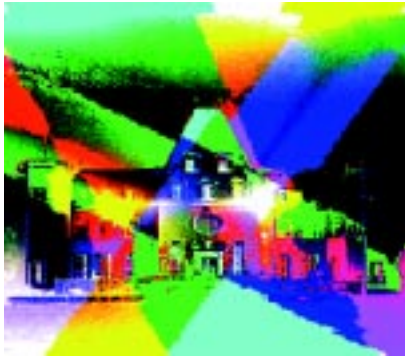


High Performance Computing in Bio-Informatics and Medical Applications

GMD-NEC Workshop
October 16/17, 2000
GMD/Schloss Birlinghoven



NEC



Invitation

GMD-NEC Workshop

High Performance Computing in Bio-Informatics and Medical Applications

Date: October 16/17, 2000

Location: GMD National Research Center for Information Technology
Schloss Birlinghoven
D-53754 Sankt Augustin
Germany

Information/Registration

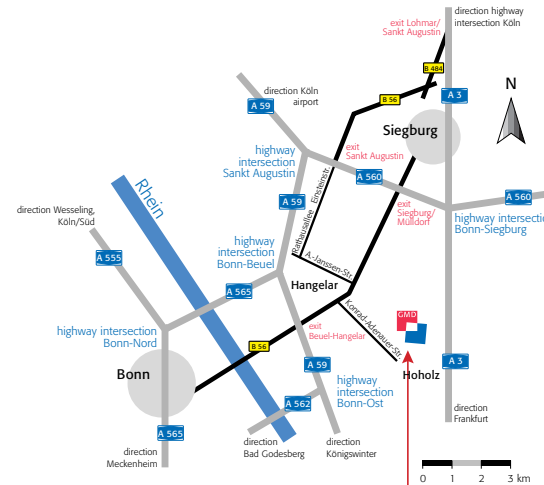
Martina Jaenisch
C&C Research Laboratories
NEC Europe Ltd.
Rathausallee 10
D-53757 Sankt Augustin
Germany

Tel.: +49 2241 92520
Fax: +49 2241 925299
Email: jaenisch@cctl-nece.de

Please also visit our web pages at:
<http://www.cctl-nece.de>
<http://www.gmd.de/SCAI/>

No attendance fee will be charged.

Map to GMD/Schloss Birlinghoven



location of the workshop

Directions to GMD/Schloss Birlinghoven

- Air:** Cologne/Bonn airport. From there a taxi costs about DM 60,-.
- Rail:** Main train station (Hauptbahnhof) Bonn. Bus line 634, direction Bonn-Hoholz. GMD is the final stop. A taxi costs about DM 30,-.
- Car:** Route A59, exit Beuel-Hangelar. Then, B56, direction Siegburg. At Sankt Augustin-Hangelar, follow the sign to GMD (right turn at intersection close to VW dealer).

Programme

GMD-NEC Workshop,
October 16/17, 2000

High Performance Computing in Bio-Informatics and Medical Applications

High Performance Computing (HPC) has now matured into a standard computing technology, which allows its introduction into sectors not normally associated with high-end computing. The focus of this workshop is on the possibilities for computer-based modelling and simulation for bio-informatics and clinical or medical applications, which are enabled by the availability of HPC systems.

The presentations included in the programme address both technologies used within the applications (such as data mining techniques, parallel coupling libraries, image processing and visualisation) as well as the applications themselves (such as drug design, prediction of biomechanical behaviour, surgical planning).

Who should attend?

The workshop targets all practitioners in the bio-informatics and clinical/medical fields who are interested in the possibilities offered by computer modelling and simulation. Members of the parallel computing community will be introduced to exciting new applications.

Monday, October 16, 2000

14:00 **Ryosei Nakazaki**, NEC Europe, Germany
Welcome and introductory words

14:10 Keynote presentation:
Ryutaro Himeno, RIKEN, Japan
The computational biomechanics simulation project at RIKEN

15:00 **Rodney Hose**, U. Sheffield, UK
Simulation of cardiovascular and orthopaedic systems

15:30 **Ulrich Hartmann**, NEC Europe, Germany
Finite Element analyses for head biomechanics

16:00 **Eberhard Haug**, ESI, France
Biomechanical simulations at ESI in transport and medicine

16:30 COFFEE BREAK

16:50 **Thomas Lengauer**, GMD SCAI, Germany
Bioinformatics - From genomes to drugs

17:30 **Richard Patzak**, Forschungszentrum Jülich, Germany
Visualization of medical volume data with the Dresden 3D display

18:00 **Minoru Asogawa**, NEC Corporation, Japan
Protein function and structure prediction using data-mining technique

18:30 END OF SESSION

19:00 RECEPTION AND DINNER AT THE REMISE

Programme

Tuesday, October 17, 2000

09:00 Keynote presentation:
Andrew Todd-Pokropek, University College London, UK
Image registration and fusion for neurosurgical applications

09:45 **Fritjhof Kruggel**, MPI Cognitive Neuroscience, Leipzig, Germany
MR image preprocessing for generating individual FE models of the brain

10:15 **André Kaeding**, mediSYS GmbH, Ilmenau, Germany
Practical use of HPC in medical applications - Experience with the HP-ISIS project

10:45 **Tomoharu Kiyuna**, NEC Corporation, Japan
PC-based multiple dipole analysis system (SynaPointPro) using multi-channel EEG/MEG and its applications

11:15 COFFEE BREAK

11:45 **Peter Post**, GMD SCAI, Germany
Multidisciplinary simulation: Fluid structure interaction

12:15 **Erwin Keeve**, CAESAR, Bonn, Germany
Julius - A surgical simulation testbed

12:45 **Guy Lonsdale**, NEC Europe, Germany
Bio-numerical simulations with SimBio

13:15 **Ulrich Trottenberg**, GMD SCAI, Germany
Wrap-up and closing remarks

13:30 LUNCH AT GMD CAFETERIA

14:00 **Demo: Medical education using distributed virtual reality**