

Parametric Study of Fluid-Structure Interaction Issues in Arterial Blood Flow

Elizabeth Livingston

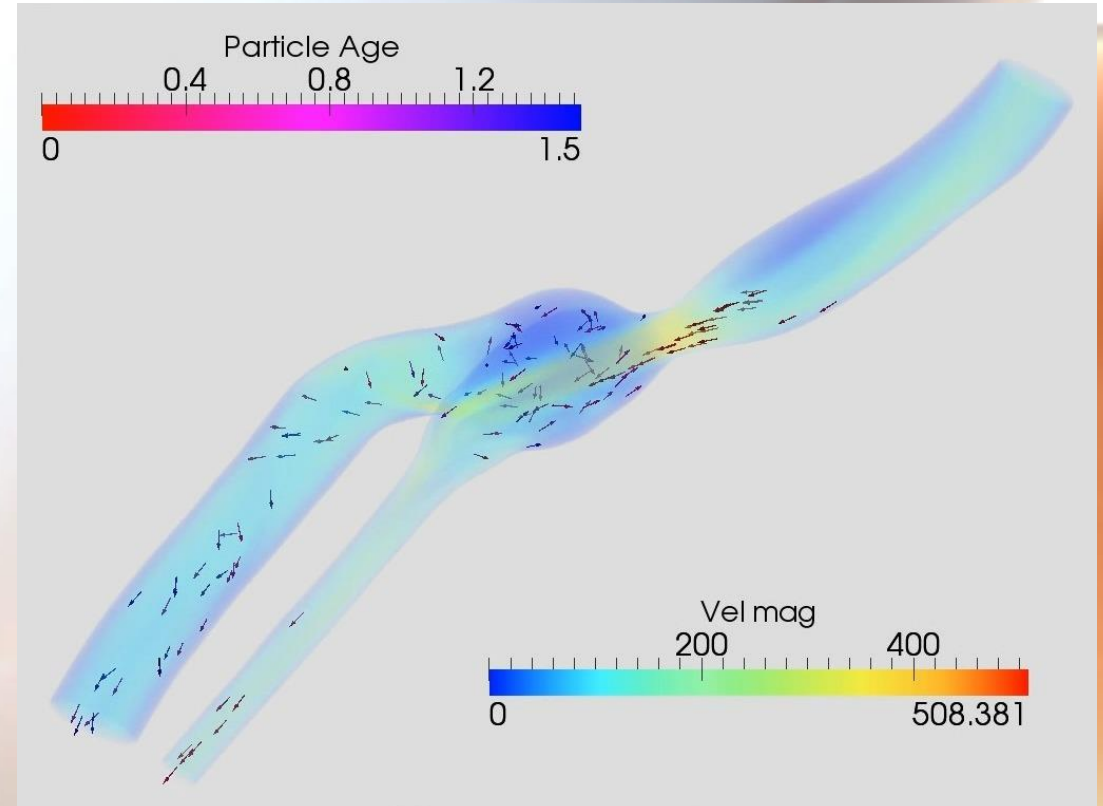
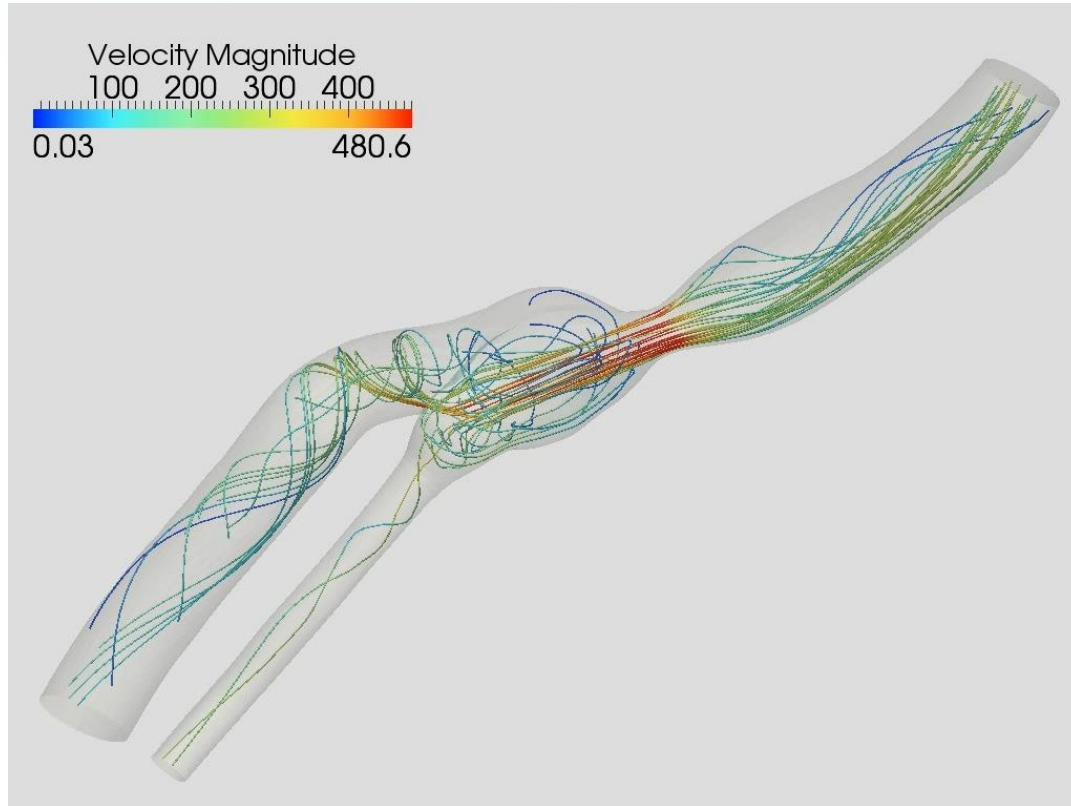
June 10th, 2016

Mentor: Professor Arif Masud

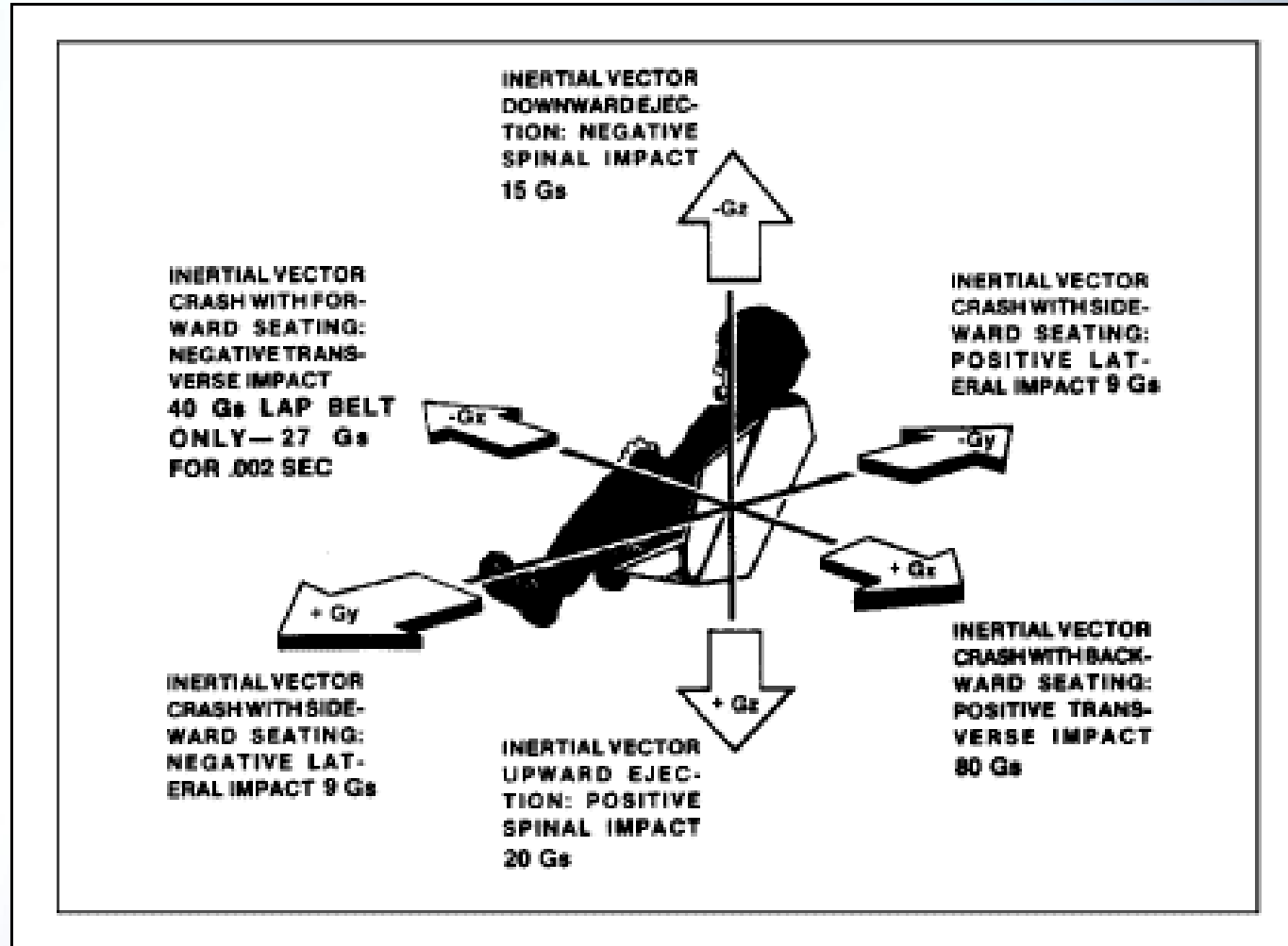
University of Illinois at Urbana Champaign



The Coratid Artery



The Effects of Low G



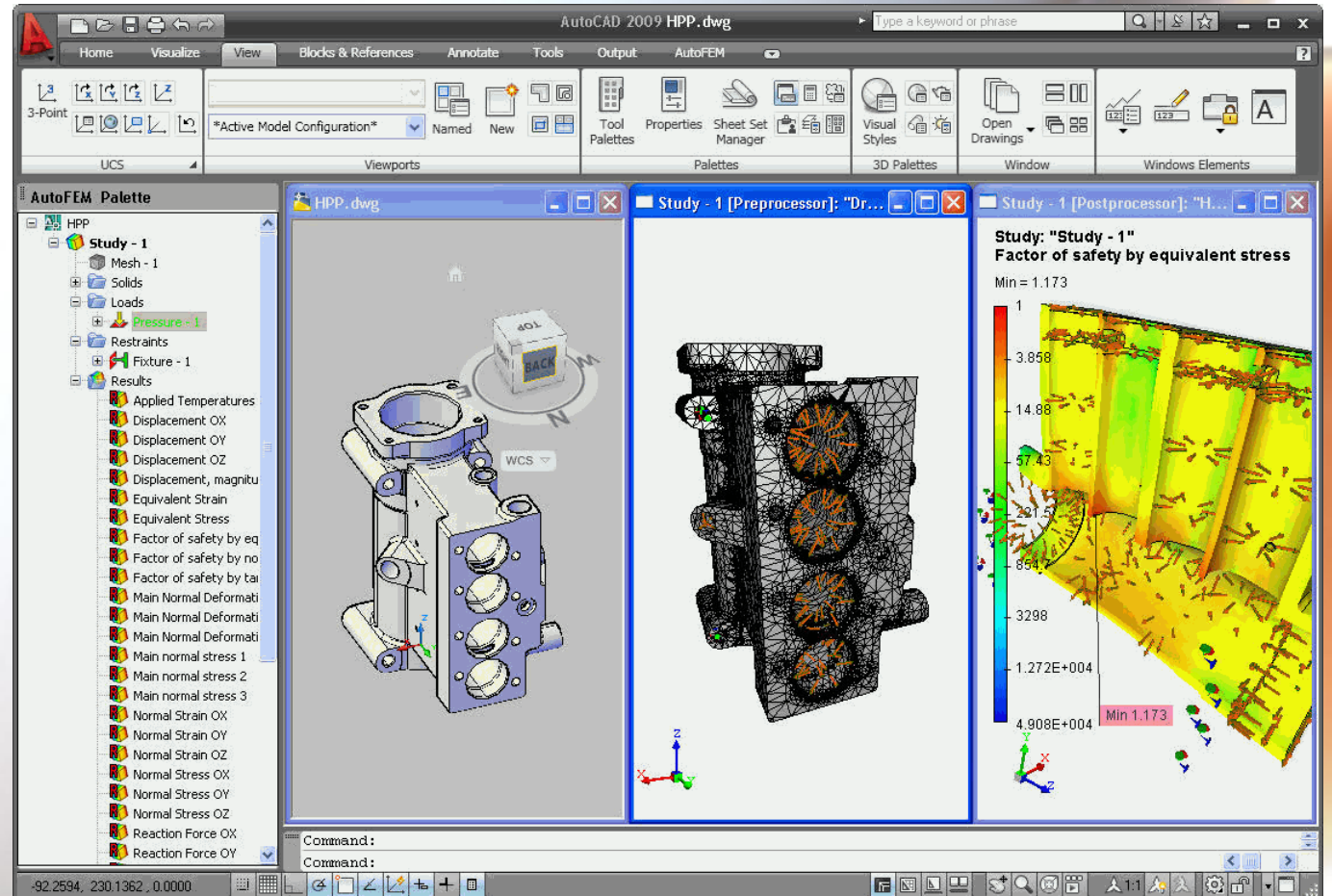
Rate
Duration
Size

Image courtesy of goflightmedicine.com



Methodology

- Analyze geometry
 - Mesh
 - Boundaries
 - Inlet/Outlet
- Develop fluid model
 - Pressure
 - Flow Rate
 - Backflow



Software

- FEAP (Finite Element Analysis Program)
- MatLab
- Fortran
- ParaView

```
guest-jHOCFr@trustetj-PW-T7400: ~/Feap/Run/01TestRun
guest-jHOCFr@trustetj-PW-T7400:~/Feap/Run/01TestRun$ pwd
/tmp/guest-jHOCFr/Feap/Run/01TestRun
guest-jHOCFr@trustetj-PW-T7400:~/Feap/Run/01TestRun$ ls
feap IEX1mod IEX2 IEX2mod~ IEX4 IEX6 LEX2mod MEX3B OEX2mod
IEX1 IEX1mod~ IEX2mod IEX3B IEX5 LEX1mod LEX3B OEX1mod OEX3B
guest-jHOCFr@trustetj-PW-T7400:~/Feap/Run/01TestRun$ ./feap

      F I N I T E   E L E M E N T   A N A L Y S I S   P R O G R A M

      FEAP (C) Regents of the University of California
      All Rights Reserved.
      VERSION: Release 8.2.i
      DATE: 15 January 2008

      I n p u t   F i l e n a m e s

      Specify filenames:

      Input   Data (default: NONE)   ) :
            Enter Name --> |
```

