Medical imaging using Debian
How Debian Med could enhance your medical imaging experience

Andreas Tille & Mathieu Malaterre
Debian

1 Intro into Debian Med
   - History
   - Blends
   - Graphing Debian Med

2 Medical imaging using Debian
   - Imaging applications
   - Developing applications for medical imaging
   - Demonstration

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3. Summary
History @ LSM 2001, Bordeaux

Andreas Tille & Mathieu Malaterre (Debian)
What is Debian Med?

practice management system
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Contains practice management system
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Debian Pure Blend for medical care and microbiological research
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Debian Med focusses on Health Care applications
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Summary
Top 10 Uploaders of Debian Med team

- Andreas T (762)
- Charles P (426)
- Steffen M (301)
- Mathieu M (159)
- Steve M. R (99)
- Aaron M. U (84)
- Thorsten A (48)
- Laszlo K (41)
- Dominique B (38)
- Olivier S (38)
Top 10 People discussing on Debian Med mailing list

- Andreas T: 3136
- Charles P: 1135
- Karsten H: 488
- Mathieu M: 378
- Steffen M: 376
- David P: 315
- Olivier S: 226
- Nelson A. de O: 191
- Sebastian H: 171
- Yaroslav H: 147
Top 10 bug hunters of Debian Med packages

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Medical imaging using Debian  
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Top 10 committers to Debian Med VCS

- Andreas T (3810)
- Charles P (2950)
- Mathieu M (1270)
- Steffen M (975)
- David P (538)
- Olivier S (516)
- Steven M. R (411)
- Aaron M. U (266)
- Laszlo K (196)
- Thorsten A (184)
Number of Packages in selected tasks

- Microbiology
- Imaging
- Practice
Healthy growth

- After some stagnation in the beginning growth in all measures
- Warning: Also the amount of own work is growing (even if work is split on more shoulders)
- Trying to attract even more upstream developers because these are the experts *(Mentoring of Month (MoM))*
- Making Debian (Med) so attractive that users in medical care can not resist using it
Healthy growth

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Types of imaging applications

- Medical image viewers for general practitioners
  - ginkgocadx / aeskulap / amide / dicomscope
- Bioimaging, volume rendering
  - gofigure2, imagevis3d, itkmsnap, volview
- Neurology
  - ants, caret, fslview, mrtrix, voxbo
- Tomography
  - ctsim, odin, plastimatch
- Scanning Probe Microscopy
  - gwyddion
- Image analysis / Simulation
  - slicer, sofa-apps
- Image format conversion tools (DICOM, MINC, NIfTI)
  - biosig-tools, dicom3tools, medcon, mriconvert
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Medical Imaging Software and complete DICOM Viewer providing a complete DICOM viewer solution with advanced capabilities and support for extensions.

- Easy and customisable interface through profiles.
- Full featured DICOM image visualisation.
- Multiple modalities support (Neurological, Radiological, Dermatological, Ophthalmological, Ultrasound, Endoscopy, ...)
- Dicomization support from JPEG, PNG, GIF and TIFF.
- Full EMH integration support: HL7 standard and IHE compliant workflows.
- PACS Workstation (C-FIND, C-MOVE, C-STORE...)
- Extensible through custom extensions
Example: ginkgocadxl

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Several development libraries

- **General**
  - `cimg-dev`, `gmic`, `libcv-dev`, `libvtk5-dev`
- **Biomedical data manipulation**
  - `libbiosig-dev`, `libgdf-dev`
- **Image format creation and conversion**
  - `libmdc2-dev`, `libminc-dev`, `libnifti-dev`
- **Specialised application development:**
  - **Image-guided surgery:** `Libigstk4-dev`
  - **Registration and segmentation:** `libinsighttoolkit3-dev`
  - **Solving EEG and MEG problems:** `libopenmeeg-dev`
- **Programming languages:** Python, C, C++, C#
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People behind medical imaging packages

- NeuroDebian team
- Experts dealing with medical imaging in daily practice
- General Debian developers (like me)
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Goal

- Integrate all Free Software with relevance for medical imaging into Debian
- Contact to upstream developers of such applications
- Support for users of these applications
- Debian Med as missing link between users and upstream developers
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This talk is available at

http://people.debian.org/~tille/talks/

Andreas Tille <tille@debian.org>