Medical imaging using Debian

How Debian Med could enhance your medical imaging experience

Andreas Tille & Mathieu Malaterre

Debian

LSM, Geneva, 9. July 2012

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   - History
   - Blends
   - Graphing Debian Med
2. Medical imaging using Debian
   - Imaging applications
   - Developing applications for medical imaging
   - Demonstration
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History @ LSM 2001, Bordeaux

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What is Debian Med?

practice management system

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Debian Pure Blend for medical care and microbiological research

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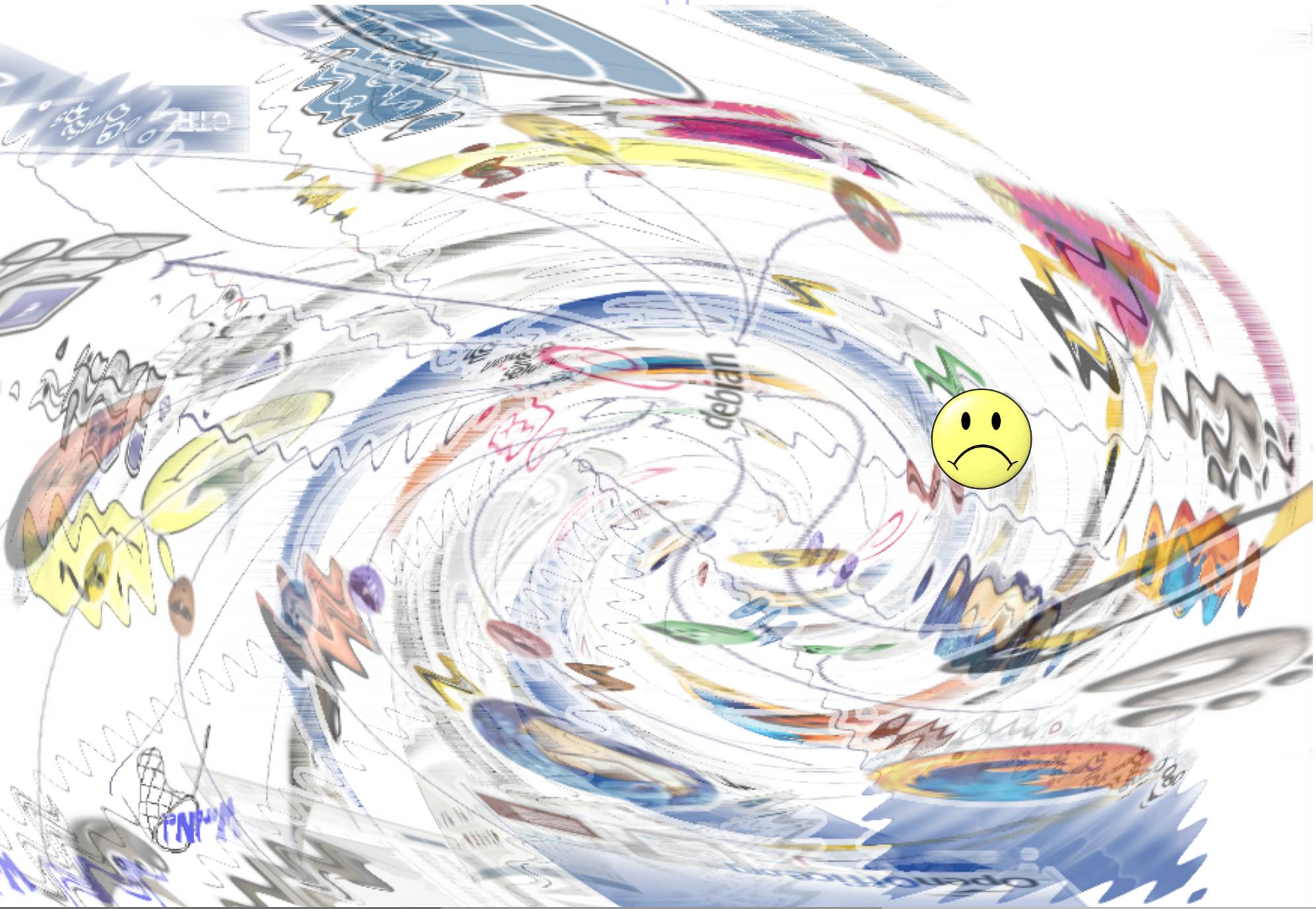
Debian

Debian Med focusses on Health Care applications



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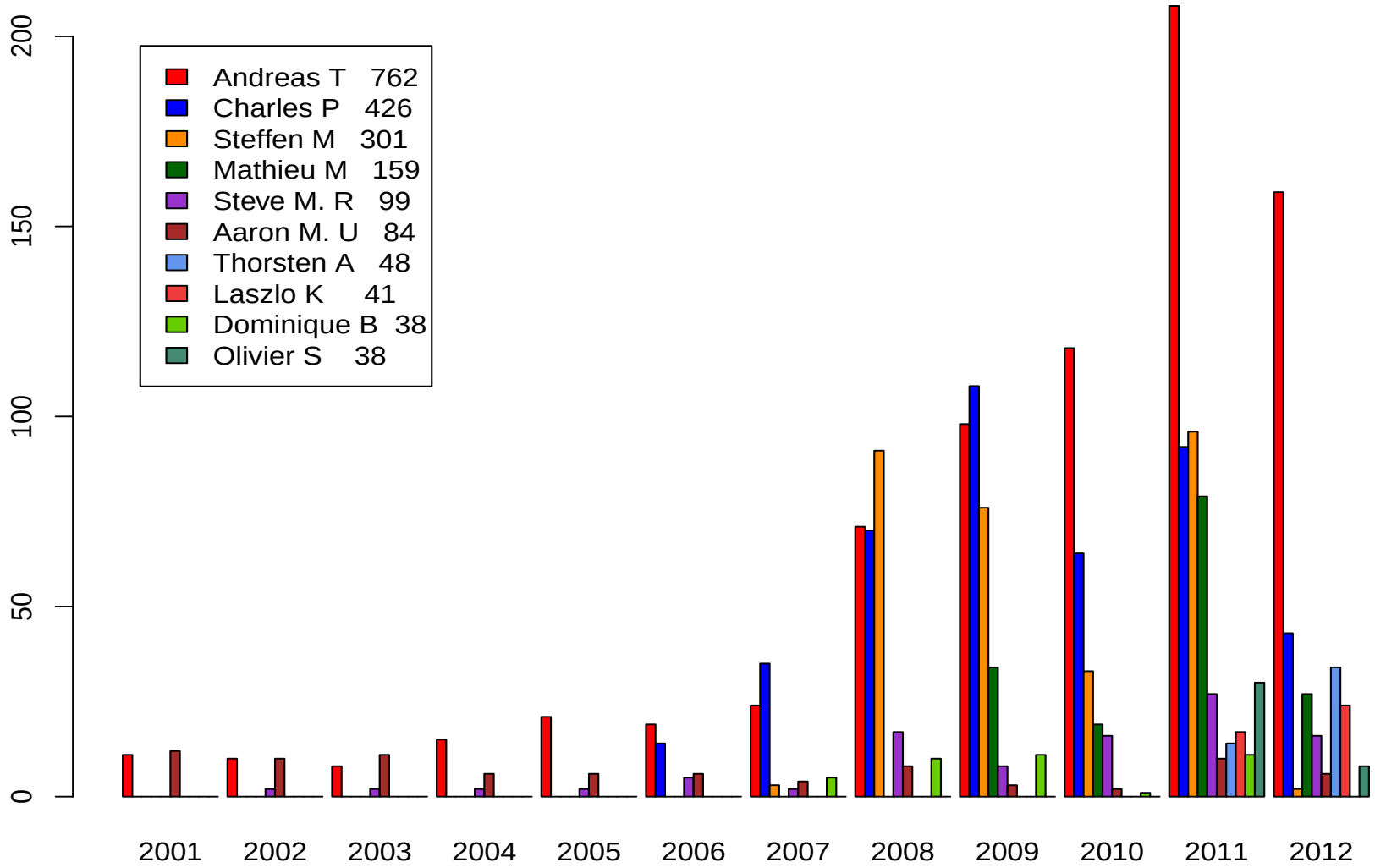
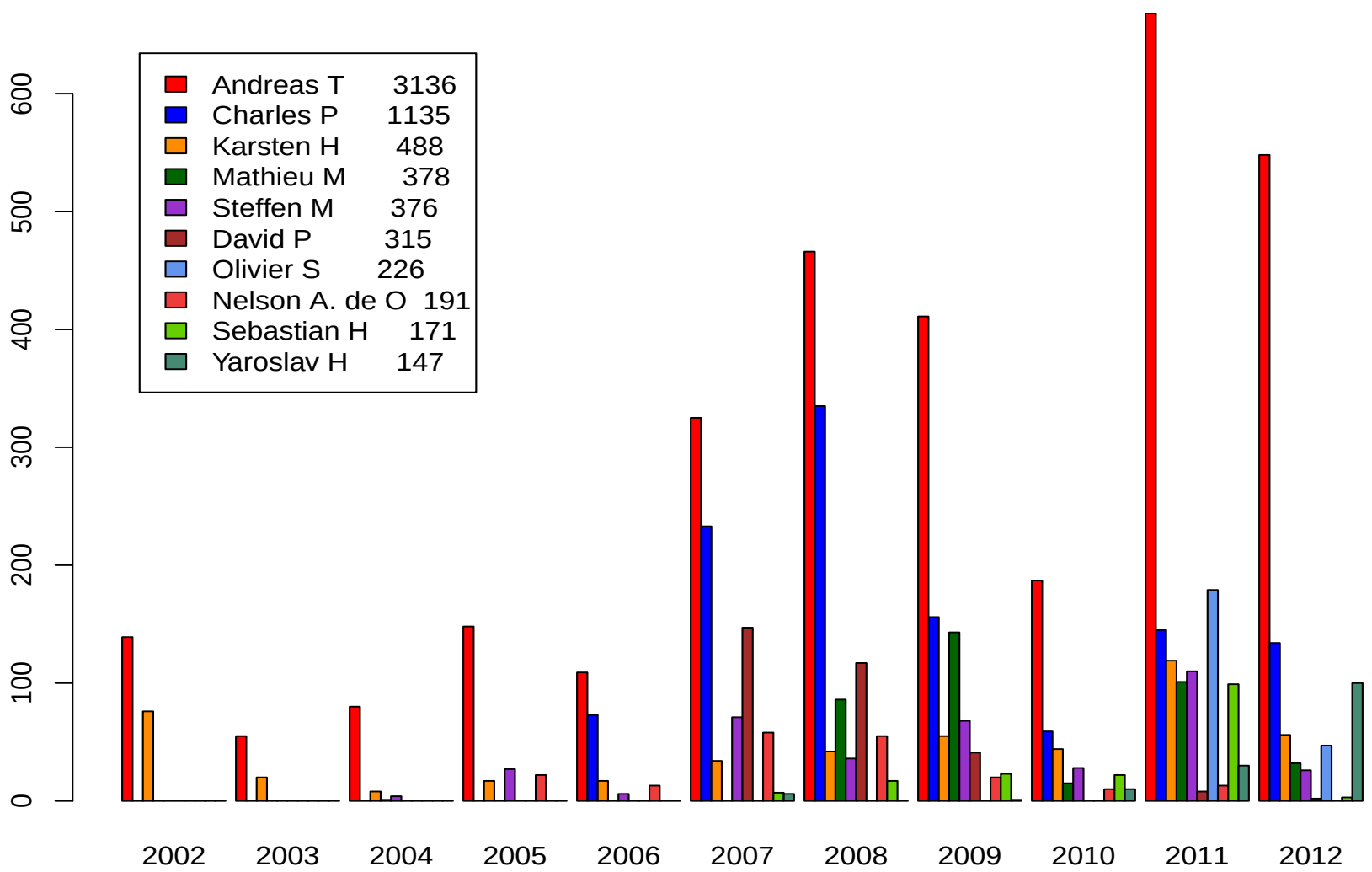
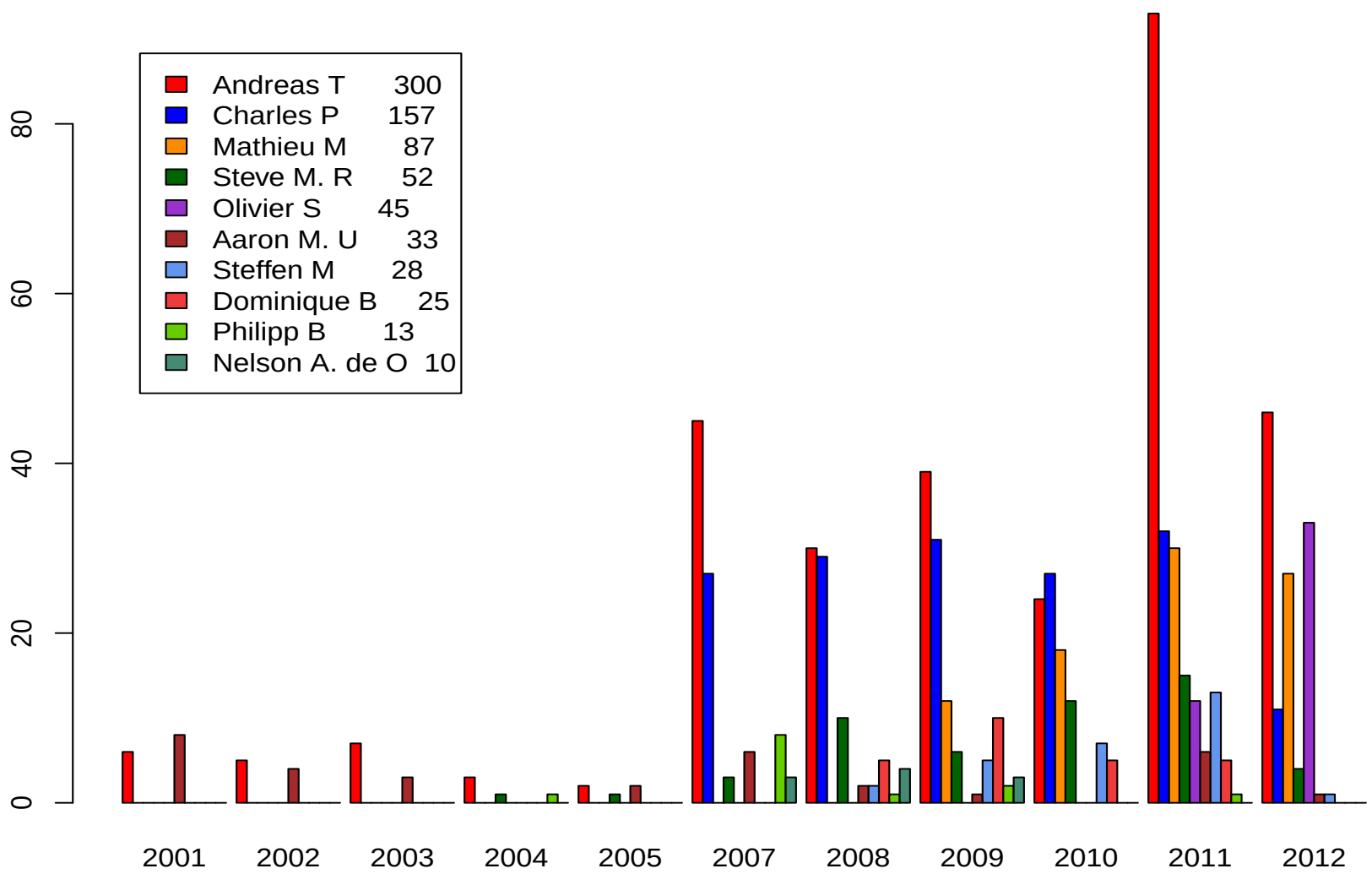
Top 10 Uploaders of Debian Med team



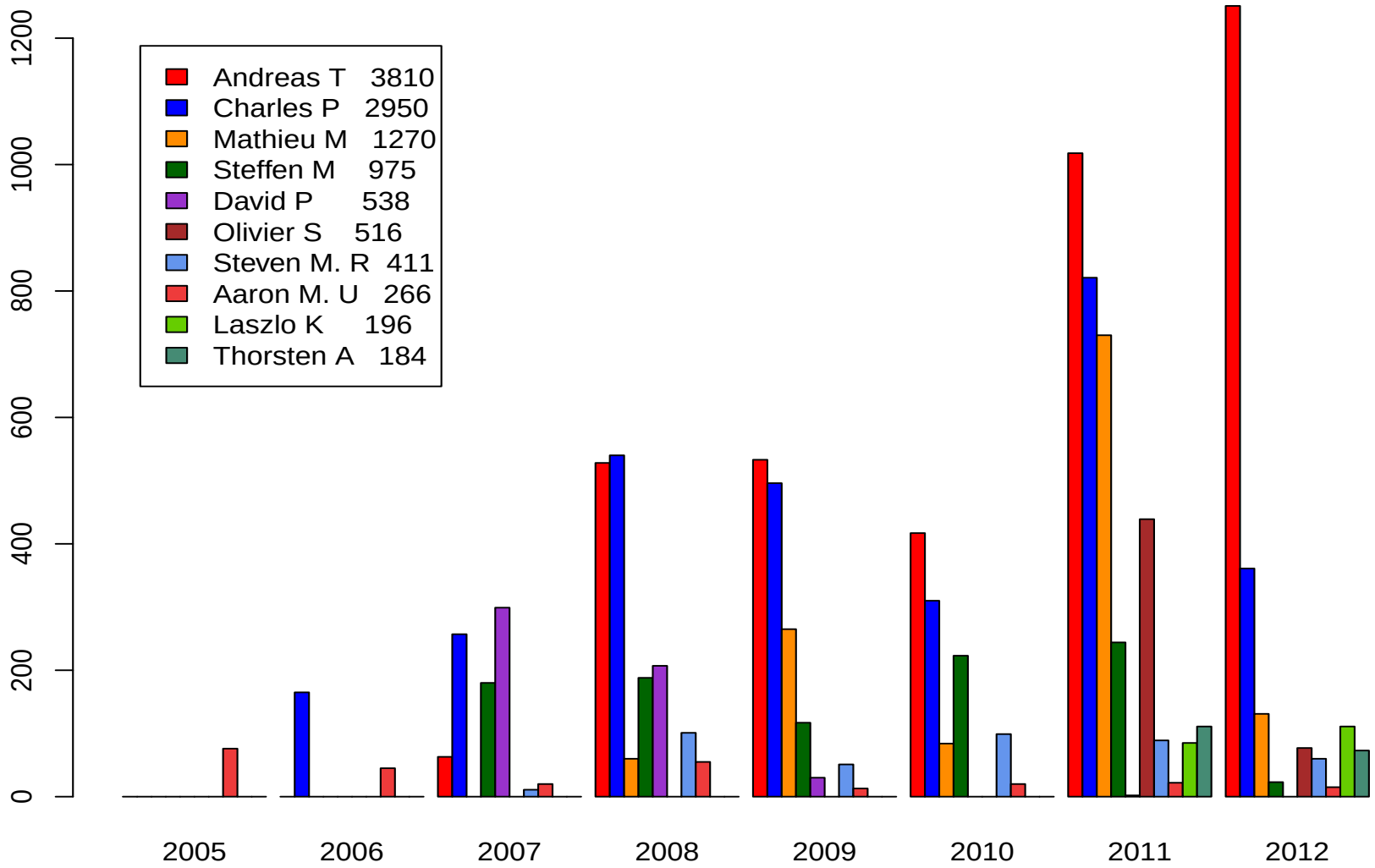
Top 10 People discussing on Debian Med mailing list



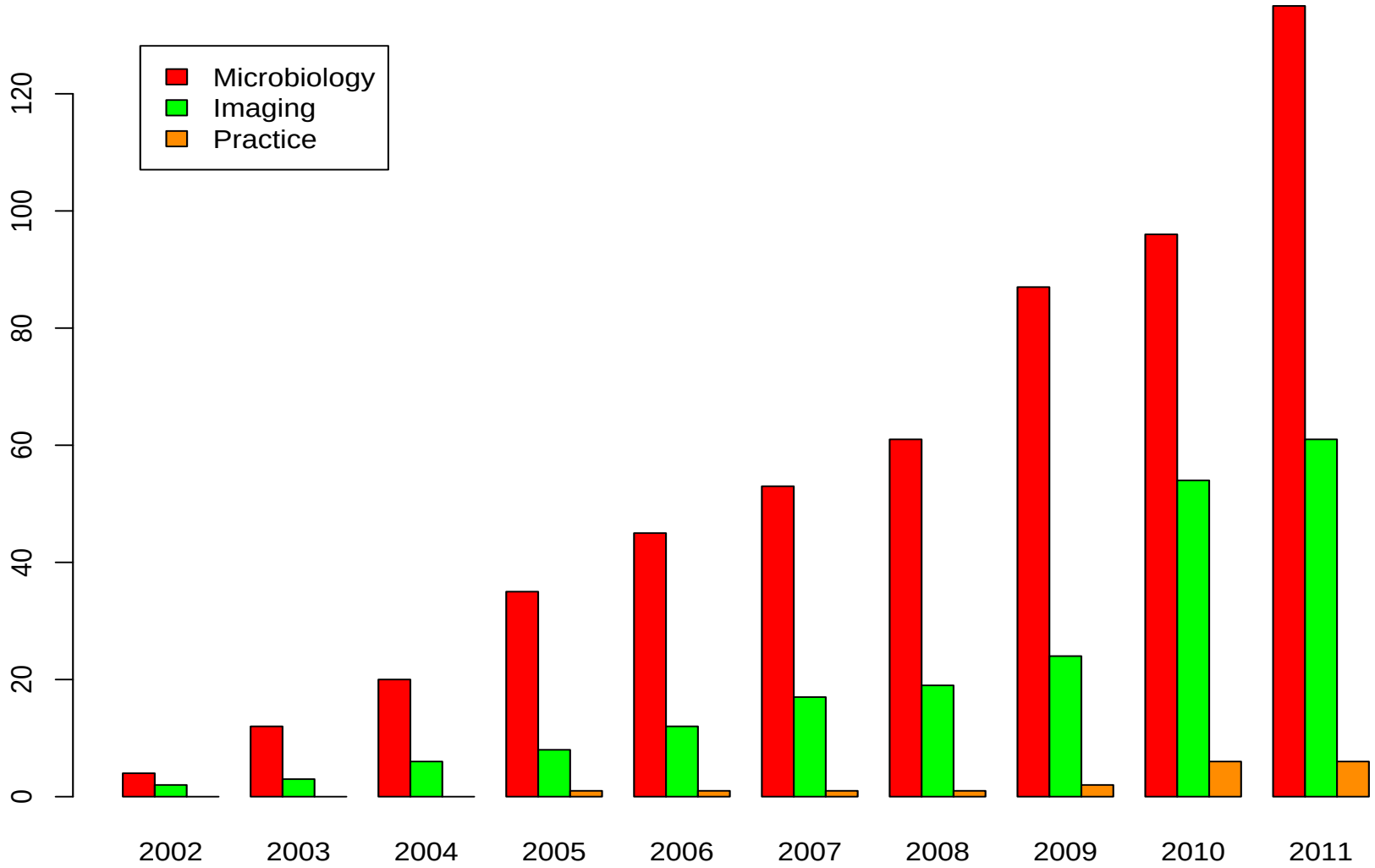
Top 10 bug hunters of Debian Med packages



Top 10 commiters to Debian Med VCS



Number of Packages in selected tasks



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

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Types of imaging applications

- Medical image viewers for general practitioners
  ginkgocadx | *aeskulap* | *amide* | *dicomscope*
- Bioimaging, volume rendering
  gofigure2, *imagevis3d*, *itksnap*, *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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Example: ginkgocadx

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

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

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- 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>