

# SIMON CONSEIL

PhD, Engineer

Astrophysics, Scientific Computing,  
Signal Processing

✉ | [simon@sconseil.fr](mailto:simon@sconseil.fr)  
La Serena, Chile

## EDUCATION

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- 2008: PhD *Image Processing and Computer Vision*. **Aix-Marseille University**, France.
- 2003 : Postgraduate degree (DEA). **INP Grenoble**, France.
- 2003 : Master's degree in Engineering, ENSIEG. **INP Grenoble**, France.  
*Specialisation*: Image and Signal Processing.

## SKILLS

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- Scientific computing, parallelization.
- *Astrophysics*: IFS, photometry, astrometry, spectroscopy, data reduction, pipeline.
- *Image Processing*: segmentation, detection and object tracking, video, compression.
- *Computer Vision*: stereoscopic vision, camera geometry, calibration, 3D modelisation, pattern recognition.
- *Software Development*: version control (git, hg), Redmine, Github, Gitlab, unit tests.
- *Communication*: Scientific articles, patents, conferences, presentations.

## WORK EXPERIENCE

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since OCTOBER 2019

*Software Engineer*, GEMINI OBSERVATORY, La Serena, Chile

- Development of the new Python-based Data Reduction Software, DRAGONS.  
<https://github.com/GeminiDRSoftware/DRAGONS>

NOVEMBER 2014 – JULY 2019

*Research Software Engineer*, CNRS, CENTRE DE RECHERCHE ASTROPHYSIQUE DE LYON

- Data reduction for the MUSE deep fields (HDFS, HUDF), with the ESO pipeline, and development of additional steps (auto-calibration, sky subtraction, *superflat*). Reduction of the 280 MUSE exposures with dedicated tools (handling dependencies between steps, version management, quality control). <http://muse-vlt.eu/science/udf/>
- *Redshift estimation*: adaptation and customization of the *Marz* software for MUSE.
- *3D detection of sources* in the MUSE data cubes, in collaboration with signal processing experts.
- *MPDAF*: Python library dedicated to MUSE data analysis. Open source switch management, with many contributions to Astropy for this purpose.
- *Sky subtraction*: development of the version 2 of *Zap* with a much improved sky subtraction.
- PSF analysis when setting up the *Adaptive Optics*. Participation to two *commissioning* runs at the VLT (Chile, July 2017 and April 2018) for the WFM-AO and the new NFM mode of MUSE. Development of a Python code for the PSF reconstruction from telemetry data.
- Working within the MUSE consortium (international collaboration with ~80 researchers), and the MUSICOS ERC (collaboration with 3 PhD thesis in signal processing). Participation to meetings (*busy weeks*), conferences (Euroscipy 2015, PyData Paris 2015, ADASS 2016, PyAstro 2018). Management of the websites [muse-vlt.eu/science/](http://muse-vlt.eu/science/) and [muse-vlt.eu/blog/](http://muse-vlt.eu/blog/).
- *Environment*: Linux, Mac OS, Python, C, Numpy, Cython, Git, Gitlab.

### Software Development Engineer, WYPLAY, Allauch

- User Interface development for Set-top boxes (numerical TV), in a team of 35 people. Usage and development of an asynchronous Python framework. (MVC, based on Dbus and OpenGL).
- Development of a JavaScript framework (based on Stapes), for a new interface using Web technologies.
- *Environment:* Linux, Python, Mercurial, Git, Redmine, Agile methods (Scrum).

JULY 2008 – JUNE 2013

### Research Engineer, CNRS, LABORATOIRE D'ASTROPHYSIQUE DE MARSEILLE

- Statistical processing of the UV images of the **GALEX** satellite:
  - Development of the EMPHOT software, for the photometry of deep fields.
  - Data processing (on a computing server and a cluster), quality analysis, development of the website for the public release: [cesam.oamp.fr/galex-emphot/](http://cesam.oamp.fr/galex-emphot/)
- Data processing and visualisation for the stratospheric balloon **FIREBALL**.
- *Environment:* Linux (Fedora), IDL, C, Python, SVN, Git, Trac.

2004 – MARCH 2008

### Ph. D, INSTITUT FRESNEL, ST MICROELECTRONICS & 3DFEEL, Marseille

- 3D Hand tracking and gesture recognition for Human-Computer Interaction.
- Stereoscopic vision with 2 cameras, segmentation, features detection, 3D tracking, Kalman, hand modelling, pattern recognition. Supervision of 2 internships. 1 patent, 3 scientific publications.
- *Environment:* Windows XP, C/C++, OpenCV, GTK+

## COMPUTER SKILLS

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|----------|-----------------------------------------------------------------------------------------|
| OS       | Linux (Archlinux, Ubuntu, Fedora, Debian), Windows, Mac OS                              |
| LANGAGES | Good knowledge of Python, C, IDL, Javascript, Shell, $\LaTeX$<br>Basic knowledge of C++ |
| TOOLS    | Git, Mercurial, SVN, Sphinx, OpenCV, ... Basic knowledge of GTK+, Qt, OpenGL.           |

## LANGUAGES

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FRENCH: **Native**

ANGLAIS: **Fluent**

## FREE SOFTWARE

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- Contributor to the **Astropy** project, co-maintainer of the FITS sub-package ([astropy.io/fits](http://astropy.io/fits)). *New contributor award* from Numfocus, 2018.
- *Sigal*: Static gallery generator (Python). [github.com/saimn/sigal](https://github.com/saimn/sigal)
- Various contributions to free softwares, in particular to Astrophysics codes ([github](https://github.com)).

## OTHER INTERESTS

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- *Climbing instructor.*
- Mountaineering, ice climbing, hiking.
- Member of the team managing the [campto-camp.org](http://campto-camp.org) website between 2004 and 2009.