

## PROFESSIONAL EXPERIENCE

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### **Institut de Radio-Astronomie Millimétrique (IRAM)**

Grenoble, FR

Receiver Group Leader

2018-

- in charge of the instrumentation team consisting of 14 people (physicists, engineers and technicians), developing and building the instrumentation for the IRAM millimeter telescopes (NOEMA interferometer and the Pico Veleta 30m telescope)
- Adapted the codebase for adversarial attacks on embeddings, conducted qualitative and quantitative analyses, worked on adversarial text generation via embedding projection

### **Max Planck Institut für Radioastronomie (MPIfR)**

Bonn, DE

Project Engineer & Project Manager

2011-2018

- Project Engineer/Manager of the upGREAT instrument aboard the NASA/DLR SOFIA airborne observatory, with the Max Planck Institut, Bonn, Germany
- Successful commissioning of the upGREAT LFA heterodyne HEB array (14 pixels at 1.9THz) in May 2015 and the HFA heterodyne array (7 pixels at 4.7 THz) in October 2016
- Definition of the instrument specifications, feasibility studies, design, fabrication and testing of the system (e.g. cryostats, optics, IF/RF signal processing chains)
- Managerial tasks consist mainly of the supervision and coordination of the various teams, organisation of quarterly status consortium meetings, and documentation (more than 100 documents written and 40 for NASA airworthiness reviewing and validation).

### **Space Research Organization of the Netherlands (SRON)**

Groningen, NL

Instrument and Calibration scientist

2008-2011

- Instrument and Calibration scientist of the HIFI instrument of the Herschel satellite at the Instrument Control Centre (ICC) with SRON (Netherlands Institute for Space Research), Groningen, the Netherlands
- Active participation in the HIFI pre-launch campaign (thermal vacuum and thermal balance tests) in December 2008 at ESTEC/ESA, Noordwijk, the Netherlands
- Deputy team leader of the In-Orbit commissioning phases in May-July 2009 and January-March 2010
- Part of the Performance and Verification (PV) team, which validated the different observing modes
- Participation in HIFI guaranteed time science key program WISH
- From March 2010 to August 2011, deputy ICC manager

### **European Southern Observatory (ESO)**

Santiago, CL

Staff astronomer and Instrument Scientist

2005-2008

- As an APEX staff astronomer, normal duties consisted of organizing and performing service observing with bolometers and heterodyne receivers, controlling of data quality and archiving. Other duties included regular optical and radio pointing observations, occasional holography runs, the characterization and monitoring of the telescope and instrument parameters and participating in the commissioning of instruments and of new observing modes
- As an instrument scientist, responsible for the heterodyne facility receivers. Commissioning lead of the APEX-2a receiver in 2005 and active role in the Swedish Heterodyne Facility receivers (SHFI) in 2008. Commissioning of the wobbling secondary and tested the frequency switching mode for future implementation. Strongly involved with the LABOCA bolometer commissioning in 2007 and its subsequent science verification phases

## **Onsala Space Observatory (OSO) with the Chalmers University**

Göteborg, SE

PhD student

2000-2005

- PhD at the Chalmers University of Technology and with the Onsala Space Observatory, in GARD group (Group for Advanced Receiver Development)
- During the first two years, design and construction of cryogenic low noise amplifiers for 3.4-4.6 GHz, 4-8 GHz and 8-9 GHz bands, which reached state of the art performance
- The next two years were spent designing and constructing a 275-370 GHz superconducting based mixer (SIS) also reaching state of the art performance. These components were then used to build a 275-370 GHz receiver (APEX-2a) for the APEX telescope in Chile (joint project ESO/Sweden/MPI)
- During the last year of PhD, I worked on the construction, testing of that receiver and was responsible for its installation and commissioning on the telescope

## **IRAM**

Granada, ES

Receiver Engineer

1998-2000

- 16 months of National Duty in Granada (Spain) plus 3 months extension, as a receiver engineer
- Involved in the receiver operation and maintenance at the 30 m telescope (Pico Veleta) and working in projects of improvement of the receiver cabin
- Gained experience with ultra-low noise receivers, microwaves, cryogenics, and high vacuum technology. Participated in the complete refurbishment of the receiver cabin, in two sessions, September 1998 and October 1999, installing new receivers.

## **Dassault Aviation**

Saint-Cloud, FR

RF Engineer

Summer 1998

- 4 months at DASSAULT AVIATION, Saint-Cloud (Paris)
- Study of SAR (Synthesis Aperture Radar) high resolution mode Spotlight. Computer simulation of the entire signal processing chain, from the emission of the chirp, linear frequency modulated pulse, by the radar, to the reconstruction of the image of the scene with tomographic algorithms

## **EDUCATION**

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### **PhD studies, Chalmers University**

Göteborg, SE

Thesis: Working on the development of instrumentation for millimetre and sub-millimetre astronomy

2000-2005

### **Ecole Supérieure d'Electricité (SUPELEC)**

Gif-sur-Yvette, FR

Last year specialisation in radiocommunications, high frequencies, microwaves

1995-1998

### **Classes préparatoires pour les Grandes Ecoles, Lycée Kléber**

Strasbourg, FR

Mathematics specialisation

1993-1995

### **Baccalaureat C, Lycée Kléber**

Strasbourg, FR

with Honours

1993-1993

## OBSERVING EXPERIENCE

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As staff astronomer and regular AOD at the APEX telescope (Chile), routine operation with bolometers and heterodyne receivers. Large experience observing at other telescopes, e.g. with the heterodyne receivers at the IRAM 30m telescope (Spain), with the bolometer array SHARC-II and heterodyne receivers at the CSO (Hawaii), observations with the 3mm heterodyne receiver at the Onsala 20m telescope (Sweden). Routine preparation, scheduling and analysis of the HIFI/Herschel observations. About 50 flights with the SOFIA NASA/DLR 747 airborne telescope.

## TEACHING EXPERIENCE

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Involved during the 5 years of PhD studies in laboratories, exercises seminars and giving lectures on microwave amplifiers and cryogenic HEMT low noise amplifiers in the courses “Microwave Engineering in Communications” and “Millimetre and sub-millimetre Receiver Technology for Instrumentation”, part of Chalmers international master programs. Regular seminars in summer schools.

Co-Supervised several master students and PhD students

## SKILLS

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- **Programming:** Python, Matlab, C, Matlab
- **Tools/Techs:** LaTeX, Git, SQL
- **Web:** HTML/CSS, Jekyll, JavaScript

## LANGUAGES

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- **French, Spanish** Native speaker
- **English, Italian** Fluent
- **German** Conversational

## AWARDS

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| • Breakthrough Prize in Fundamental Physics Awarded to the Event Horizon Telescope Collaboration | 2020 |
| • AAS Bruno Rossi Prize to the Event Horizon Telescope Collaboration                             | 2020 |
| • Einstein Medal awarded to the Event Horizon Telescope Collaboration                            | 2020 |
| • NSF Diamond Award to the Event Horizon Telescope Collaboration                                 | 2019 |
| • Nelson P. Jackson Award to the Event Horizon Telescope Collaboration                           | 2019 |
| • USRA Best SOFIA-based Research Publication Award   | 2019 |
| • IEEE Transactions on THz Science and Technology Best Paper Award                               | 2018 |
| • Regional champion Jeux Mathématiques et Logiques   | 1993 |
| • 2 <sup>nd</sup> prize Rally Mathématiques d’Alsace   | 1993 |
| • 2 <sup>nd</sup> prize Rally Mathématiques d’Alsace   | 1992 |
| • 2 <sup>nd</sup> prize Rally Mathématiques d’Alsace   | 1991 |

## REVIEWS & COMMITTEES

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Regular reviewer for Astronomy & Astrophysics, IEEE Transactions on Terahertz Science and Technology, International Journal of Millimeter and Terahertz waves and Journal of Astronomical Instrumentation.

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| • Scientific Organizing Committee of the International Space Terahertz and Technology Symposium | 2017–2021 |
| • Member of the group E (R&D) of the INSU/CNRS prospective Astronomie-Astrophysique             | 2020      |
| • ESA JUICE – SWI external instrument expert  | 2020      |
| • ESO ALMA Band 9 development study external review member                                      | 2020      |
| • ESO ALMA Band 2 critical components baseline selection review panelist                        | 2019      |
| • NASA APRA ROSES program 2018 review panelist  | 2018      |