# Benoît PAIRET

*PhD in signal processing*

## Educational background and experience

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| 2021-now | **Researcher, MarSur project**, *Enabling operations with multiple heterogeneous unmanned maritime assets.*, Royal Military Academy, Belgium. |
| 2015-2020 | **PhD in signal processing**, *"Signal Processing Methods for High-Contrast Observations of Planetary Systems", Exoplanets and circumstellar disks imaging and detection, Inverse problem solving*, Université catholique de Louvain, Belgium. |
| 2013-2015 | **Master in applied mathematics**, *Master thesis : detecting exoplanets*, Université catholique de Louvain, Belgium. <br> Cum laude |
| 2010-2013 | **Bachelor in Engineering**, *Option in applied mathematics and theoretical physics*, Université catholique de Louvain, Belgium. <br> Cum laude |

## Teaching activities

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| 2017 – 2018 | **Signal and systems**, *Teaching assistant*, Université catholique de Louvain. |
| 2015 – 2018 | **Physics 3**, *Teaching assistant*, Université catholique de Louvain. |
| 2012 | **Numerical methods**, *Étudiant moniteur*, Université catholique de Louvain. |

## Experience

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| 2014 | **Mission to Mars UCL**. <br> Scientific project : Life on an analog Mars station in Utah desert, USA, while performing scientific experiments |
| 2012-2013 | **Humanitarian project**. <br> Humanitarian project : Design and installation of an off-grid photovoltaics system in Benin, Africa |
| 2012-2015 | **Kot-à-projets**. <br> Theme shared flats promoting photography (Photokot) and French language (Kot Ardoise) on Louvain-la-Neuve |

## Technical skills

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| Langages | Python, Matlab, Java, LaTeX |
| Fields | Signal processing, Inverse problems solving, Compressed sensing, Optimization, Numerical methods, Exoplanets detection, Theoretical physics |

## Language skills

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| French | Native |
| English | Fluent |
| Dutch | Intermediate |

## Other

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| Skills | Team worker, quick learner, able to work under pressure, eager to learn, steadfast |
| Hobbies | Biking, guitar, piano, science, literature, photography, former boyscout |

## Publications and workshops as first author

**2020**    **MAYONNAISE : a morphological components analysis pipeline for circumstellar disks and exoplanets imaging in the near infrared**, *Submitted in Monthly Notices of the Royal Astronomical Society*.

**2020**    **Morphological components analysis for circumstellar disks imaging**, *ITWIST 2020*, Nice, France.

**2019**    **Iterative low-rank and rotating sparsity promotion for circumstellar disks imaging**, *SPARS 2019*.

**2019**    **STIM map : detection map for exoplanets imaging beyond asymptotic Gaussian residual speckle noise**, *Monthly Notices of the Royal Astronomical Society*.

**2018**    **Reference-less algorithm for circumstellar disks imaging**, *ITWIST 2018*, Marseille, France.

**2016**    **Low Rank and Group-Average Sparsity Driven Convex Optimization for Direct Exoplanets Imaging**, *ITWIST 2016*, Aalborg, Denmark.

**2016**    **1st international Vortex workshop**, *California Institute of Technology*, Pasadena, California.

## Publications in collaboration

**2019**    **Separating extended disc features from the protoplanet in PDS 70 using VLT/SINFONI**, *Monthly Notices of the Royal Astronomical Society*.

**2019**    **VLT/SPHERE exploration of the young multiplanetary system PDS70**, *Astronomy & Astrophysics (A&A)*.