



ABOUT ME

Date of birth_09/06/1994

Nationality_Dutch

At present, I'm a PhD student working on optical aspects of astronomical instrumentation. Besides performing analyses in ZEMAX OpticStudio and Python 3, I've recently started to use Fourier Optics for analyses that can not be sufficiently performed using ray tracing. A significant part of my PhD project will be spent on this topic. In my free time I like to listen to a lot of podcasts, work on my own website and follow the development of new technologies. I used to invest significant time in my hobby of photography, but recently I have not been able to find the time to do this outside of holidays.

CONTACT

Address_Removed for web version

Mobile_

Work_

Email_

Website_www.javandenborn.nl

SOFTWARE SKILLS

Python

Zemax OpticStudio

Photoshop

LaTeX

Microsoft Office

Windows OS

MacOS

Linux

EXPERIENCE

Jun 2018 > Feb 2019

Junior Optical Engineer @ NOVA Optical-IR Group (Dwingeloo)

The main activities include analysing performance of optical designs for astronomical instruments, performing tolerance analyses on optical designs using Zemax OpticStudio and programming scripts in Python to perform explorations of the parameter space for said optical systems. Additional activities include doing smaller analyses related to system design, for example doing thermal simulations or performing tests and analysing experimental data.

Nov 2015 > Jun 2017

Chair of the recreational committee @ Residents Association Selwerd 2 (Groningen)

As chairman of the recreational committee I presided the monthly meetings and I helped organise various parties, live music nights and the regular nights for the student bar located in the red student building in Selwerd, Groningen.

Sep 2014 > Feb 2015

Teacher @ Winkler Prins (Veendam)

Internship for my educational minor, where I followed my supervisor around and took over some of his Mathematics classes (year 3 and 4 of VMBO-T). I prepared lessons and checked exams.

EDUCATION

Feb 2019 > Present

PhD Astronomy - Instrumentation @ University of Groningen (Groningen)

PhD topic - Ensuring optimal performance of the MICADO Atmospheric Dispersion Corrector, with a particular focus on the astrometric performance. The project is done in close collaboration with the NOVA Optical-IR Group in Dwingeloo, the Kapteyn Astronomical Institute and the Engineering and Technology institute Groningen (ENTEG) at the university of Groningen. Supervisors: Prof. Dr. Eline Tolstoy, Prof. Dr. Ir. Bayu Jayawardhana, Dr. Ir. Willem Jellema & Ir. Ramon Navarro.

Sep 2015 > Nov 2017

MSc Astronomy - Instrumentation and Informatics @ Kapteyn Astronomical Institute, University of Groningen (Groningen)

MSc thesis - Quantifying the wavefront error budget of the MICADO ADC using power spectral density analysis. Supervisor: Dr. Ir. Willem Jellema.

Sep 2012 > Sep 2015

BSc Astronomy @ Kapteyn Astronomical Institute, University of Groningen (Groningen)

BSc thesis - An investigation into the correlation between CO and H2O emission in protoplanetary disks. Supervisor: Dr. Inga Kamp.

Sep 2006 > Sep 2012

VWO Gymnasium @ Erasmiaans Gymnasium (Rotterdam)

OTHER DIPLOMAS

Driver's License: AM, B

Instruction for Safe Alcohol Usage

(Instructie Veilig Alcoholgebruik)

Limited Grade-Two Teaching qualification (Beperkt tweedegraads lesbevoegdheid)

INTERESTS

Photography / Technology /

Graphic design / IT Security /

Astronomy / Ultimate Frisbee /



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LANGUAGES

Dutch > Mother tongue

English > Proficient user

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PUBLICATIONS

Dec 2020 > Proceedings of SPIE

A Fourier optics approach to evaluate the astrometric performance of MICADO

J.A. van den Born; W. Jellema; R. Navarro; E. Tolstoy; B. Jayawardhana and A.W. Janssen.

Proc. SPIE 11450, Modeling, Systems Engineering, and Project Management for Astronomy IX, 114500V (13 December 2020). DOI: <https://doi.org/10.1117/12.2560912>

Jun 2020 > Monthly Notices of the Royal Astronomical Society

Quantification of the expected residual dispersion of the MICADO Near-IR imaging instrument

J.A. van den Born; W. Jellema.

Volume 496, Issue 4, August 2020, Pages 4266–4275. DOI: <https://doi.org/10.1093/mnras/staa1870>

Jul 2018 > Proceedings of SPIE

End to end optical design and wavefront error simulation of METIS

T. Agócs; S. Zuccon; W. Jellema; J.A. van den Born; R. ter Horst; P. Bizenberger;

M. Concepcion Cardenas Vazquez; S. Todd; N. Baccichet and C. Straubmeier.

Proc. SPIE 10702, Ground-based and Airborne Instrumentation for Astronomy VII, 1070290 (11 July 2018).

DOI: <https://doi.org/10.1117/12.2313434>

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RECENT COURSES & CONFERENCES

Dec 2020 > 5 day conference

SPIE Astronomical Telescopes + Instrumentation digital forum (Online)

Usually a five day conference, this digital forum offered me the chance to present my work to an international public of engineers and researchers in astronomical instrumentation.

Web link: <https://www.spie.org/as>

Oct 2020 > 5 day course

HAR Observations School @ L'Observatoire d'Astrophysique de Marseille (Online)

This five day course covered a range of topics relevant to high angular resolution observations in astronomy, including Adaptive Optics, High Contrast Imaging and Integral Field Spectroscopy. During plenary sessions I presented my own research work and during tutorials we got to work with real telescope data.

Web link: <https://sites.google.com/view/astro-har>

Oct 2019 > 5 day course

NOVA Fall School @ ASTRON (Dwingeloo)

A five day course aimed at all first year PhD students in astronomy from any of the NOVA universities. We followed lectures on writing and reading scientific papers and on pulsars and Fast Radio Bursts. We also presented our recent work to our peers.

Web link: <https://www.astro.rug.nl/-NOVAeduc/novafall.php>

Oct 2019 > 6 day course

International School on Space Optics @ ENEA (Rome)

A six day course that gives an overview of all aspects of optics used in space. It was aimed at young engineers and scientists working in the field of space applications. Lectures and exercises were presented by experts from the respective aspects of the field and trips to relevant local companies, such as AVIO, ESA-ESRIN and LEONARDO were organized.

Web link: <http://www.isso2019.org>
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RECENT COURSES & CONFERENCES (continued)

May 2019 > 3 day conference

NAC - The Dutch Astronomers' Conference @ Groningen

Organized by the Kapteyn Astronomical Institute the Dutch Astronomers' Conference was the 74th yearly conference, where astronomers presented their recent work. Simultaneous to the presentations it offers a nice environment for networking with colleagues from other parts of The Netherlands. I did not present anything myself, since I had only just started with my PhD project.

Web link: <https://www.astro.rug.nl/nac2019/>

Mar 2019 > 5 day course

Systems Engineering @ NOVA Optical-IR Group (Dwingeloo)

Intensive five day course given by Robert Halligan of Project Performance International. The course aimed to give a significant understanding and useful methods of applying systems engineering in projects. It involved both lectures and exercises.

Web link: <https://www.ppi-int.com/training/se5d/>
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