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CPUT

UCT

NUST

Angola NOSA



UNISEC Southern Africa Region Activities

by
Herman Steyn



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY

Electronic Systems Laboratory
Department of Electrical & Electronic Engineering
Stellenbosch University

November 2018

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UNISEC-SAR Members

- Stellenbosch University (SU)
- Cape Peninsula University of Technology (CPUT)
- University of Cape Town (UCT)
- Namibian University of Science and Technology (NUST)
- Angola (Angolan National Office for Space Affairs)



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Southern Africa and UNISEC

- SU & CPUT are established
- UCT has grown substantially
- NUST and Angola have great potential for growth
- Involved in UNISEC competitions
 - 1x semi-final MIC
 - 5x finalist MIC1-MIC5
 - 3x finalist DDC



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➤ ZACube-2

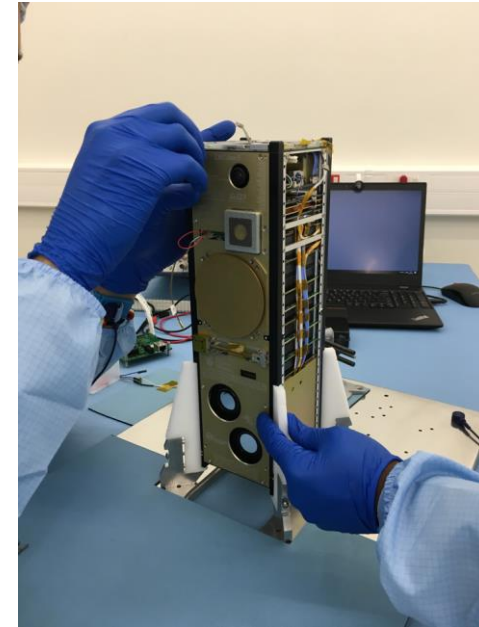
- The satellite was developed over a 2-year period by students and staff at CPUT
- It will be launched in December 2018.
- The 3U CubeSat is a technology demonstrator for two payloads:
 - Software Defined Radio based AIS receiver
 - Novel K-line medium resolution imager for veld fire detection
- Stellenbosch University (also a UNISEC member) supplied the ADCS
- The mission is funded by the South African Government

➤ Amaya Space

- CPUT established Amaya Space as a vehicle to commercialise its satellite programme and provide employment opportunities for its students.



Cape Peninsula
University of Technology





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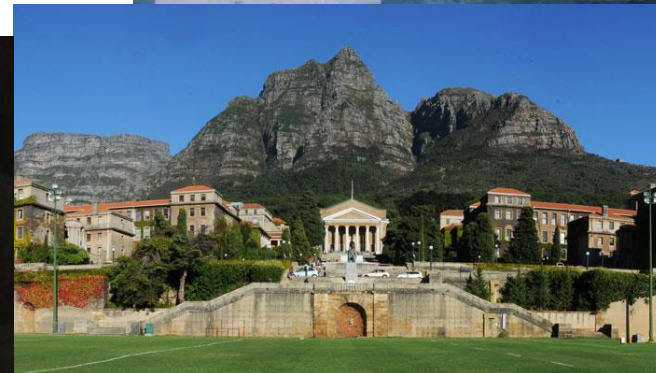
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- Offers MPhil in Space Studies
- Focus not only Satellite Engineering but also on regulation, space law aspects and orbital debris
- 14 papers presented at IAC 2017
- Student won award for best individual proposal at ESA's Sentinel Smallsat S3 Challenge



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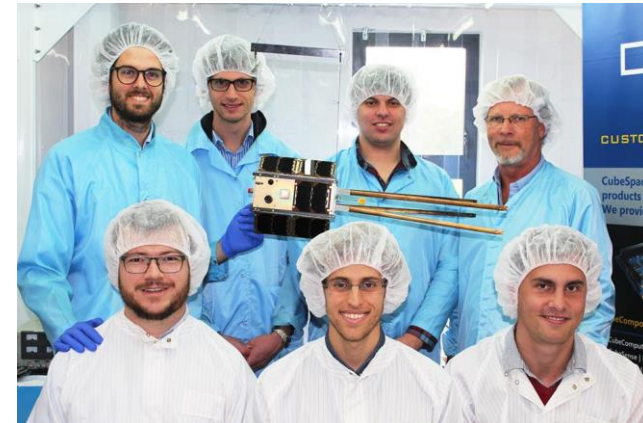
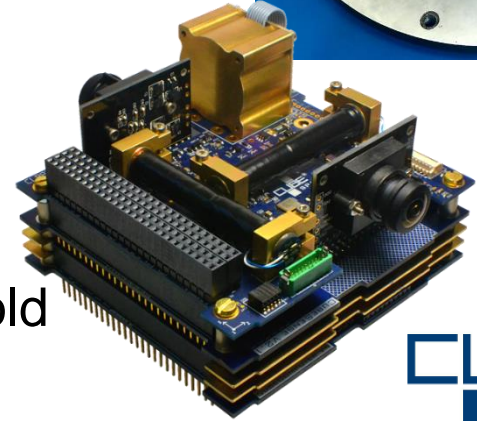
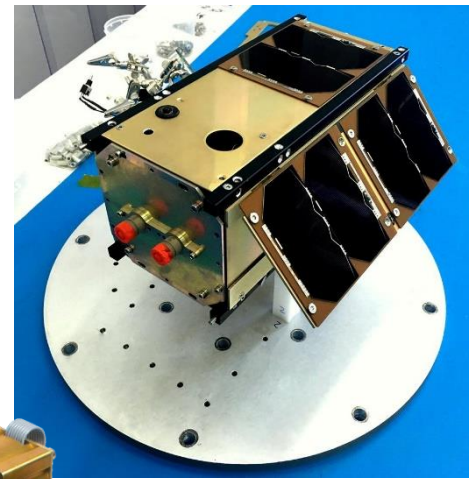
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Stellenbosch University - CubeSpace

- All engineers are past UNISEC – MIC competition participants
- Focuses on ADCS and space radiation research
- Continue to develop ADCS CubeSat components which is sold through CubeSpace
- QB50 Mission contribution
 - ZA-Aerosat
 - Components for nSight
 - ADCS supplied for 15 teams
- Involved in interesting international projects including RemoveDebris



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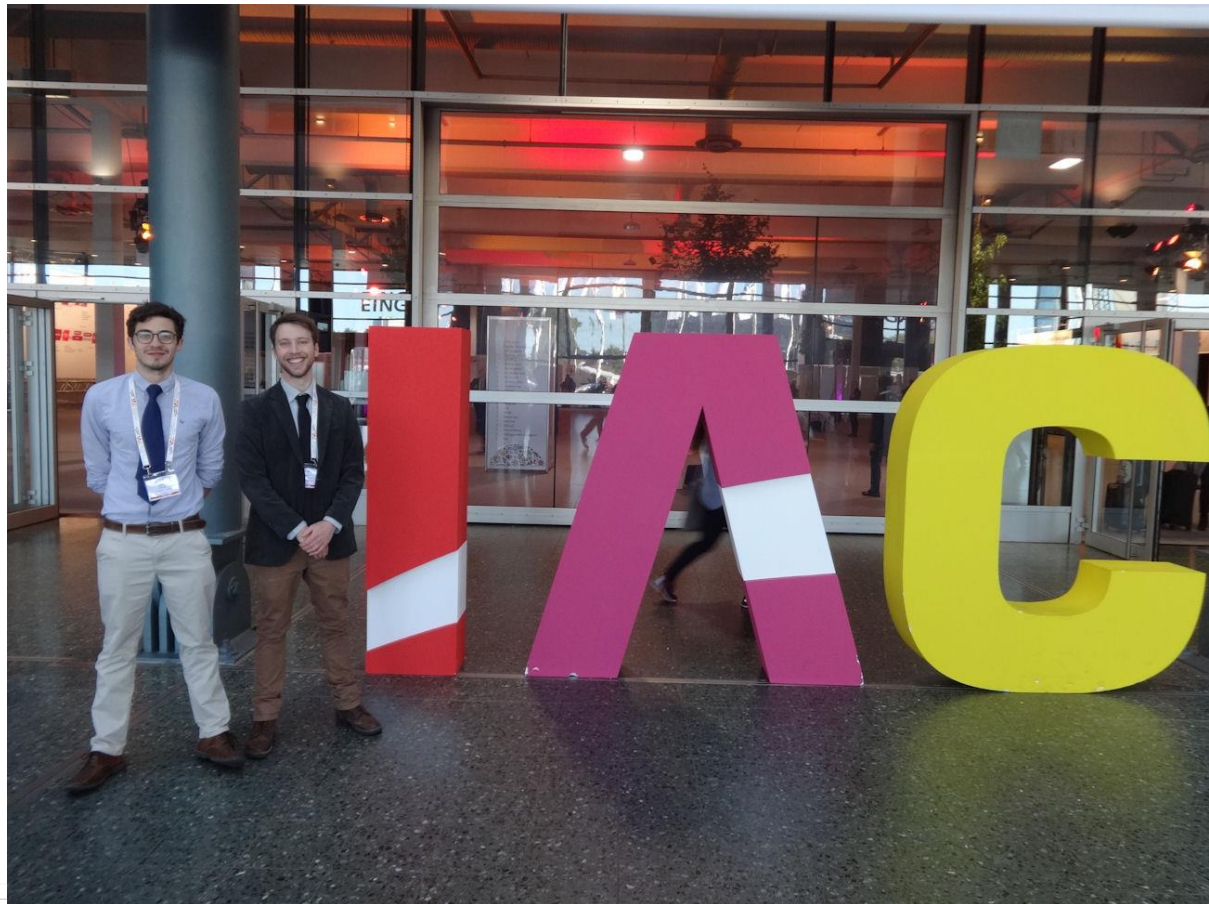
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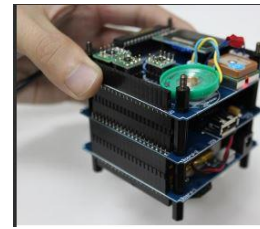
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Stb Univ @ IAC 2018 in Bremen

- Gabriël Roux won “Best Technical Student Paper” award
- Jürgen Ludemann won “Graduate Category 2nd prize” (Silver medal) award
- Both students were previous Unisec competition finalists



HEPTA Workshop



Providing Space Systems Engineering
Hands-on Practices
Pico-satellite Training kit HEPTA

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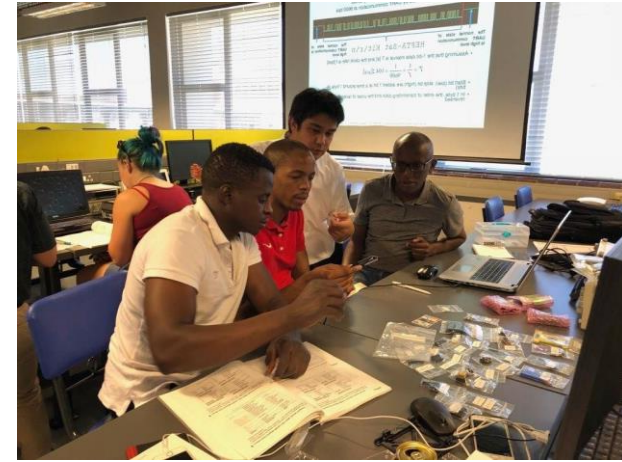
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- Held prior to the UN-BSTI Conference in Stellenbosch on 9 – 11th December 2017
- Presented by Prof Yamazaki and Dr Yoshihara from Nihon University
- 18 Participants, 9 local from Unisec SAR, 9 international



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NIST CANSAT Workshop



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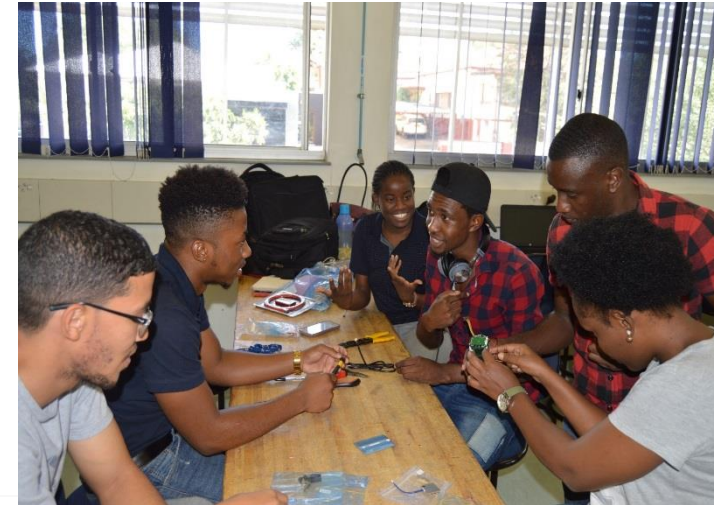
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- Held 17-19th April 2018 at Namibia Univ of Science and Technology
- Facilitated by Prof Kim Sangkyun (Unisec) and Dr Smita Francis (NUST & NIST)
- Workshop for students and faculty of Electrical Engineering



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Thank you

UNISEC-SAR POCs



Arno
Barnard



Zolana
Joao



Smita
Francis