

SASBi

Newsletter

Inside the Issue

STELLENBOSCH
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Spier
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South African Society for
Bioinformatics

Bio2020



VISIT BY NCBI SCIENTIST DR. LEONARDO MARINO-RAMIREZ

Dr. Mariño-Ramírez’s visit was part of the ongoing capacity building in bioinformatics, which is urgently needed to help address the severe shortage in computational expertise in the Biological and Health Sciences in South Africa.

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CONFERENCE @ SPIER STELLENBOSCH

The South African Genetics Society (SAGS) and the South African Society for Bioinformatics (SASBi) invites you to the Bio2020 joint Congress at Spier Wine Farm, Stellenbosch, from 22-25 September 2020.

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STUDENT PROFILES @ STELLENBOSCH UNIVERSITY

Insight into the life of a student.

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PRESIDENT’S LETTER

By Prof Gerard Tromp

You are reading the 6th SASBi newsletter in 2019. We started publishing newsletters in 2019, since SASBi is a very small society with currently only about 125 members and communication between members is very important. Six times this year you have had the opportunity to read about bioinformatics in different institutions in South Africa. We have specifically highlighted the young bioinformaticians studying at different South African universities.

In this current issue, you can read about the highly successful visit by NCBI scientist Leonardo Mariño-Ramírez to South Africa in November 2019, the exciting plans for Bio2020 Conference on 22-25 September 2020 at Spier Wine Farm in Stellenbosch, and the SASBi student council activities. We have also included “ScienceBytes” from recent literature and student profiles on 4 bioin-

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Prof Gerard Tromp

Photograph: Stefan Els.

formatics students from our team at Stellenbosch University. This newsletter also contains a story about Science Communication Awards and a communication by Trust Odia on the importance of making bioinformatics more accessible to African scientists.

In 2019, SASBi council convened 8 times. We discussed e.g., ways to interact with other South African scientific societies, to organize workshops and how to help our young scientists. We are asking your help in figuring out what we should do as a Society.

I would encourage you to get in touch with council members to let us know what you would like to have your Society do. You can find the contact details for every council member on our website <http://sasbi.weebly.com/council-2018-2020.html>. I wish all of you a fantastic holiday and a prosperous New Year 2020!

Gerard

"I wish all of you a fantastic holiday and a prosperous New Year 2020!"

Bio2020 CONFERENCE

By Ncité Da Camara

The South African Genetics Society (SAGS) and the South African Society for Bioinformatics (SASBi) invites you to the Bio2020 joint Congress at Spier Wine Farm, Stellenbosch, from 22-25 September 2020.

The four-day scientific conference brings together regional – and internationally known – experts to focus on bioinformatics and promote multi-disciplinary and multi-institutional scientific co-operation and integrated research approaches to uplift science in South Africa/Africa.

The conference will showcase up-to-date information during plenary sessions, symposia, oral presentations, poster sessions, and workshops. We look forward to hearing about new developments and collaboration with related fields and societies.

The Bio2020 conference is a platform that encourages the partici-

pation of young scientists by accommodating more student projects and providing several travel awards to build and grow the SASBi/SAGS community.

The members of the Bio2020 organizing committee include Dr. Clint Rhode (SAGS) and Prof Gerard Tromp (SASBi) as co-chairs. Managing the scientific program is Dr. Aletta van der Merwe (SAGS) and Dr. Ruben Cloete (SASBi). The social program will be arranged by Dr. Beatrix Coetzee (SAGS) and Ms. Mahtaab Hayat (SASBi). Mr. Michael Wolf (SAGS) and Dr. Cedric Werely (SASBi) are in charge of the sponsorships. Representatives of the student affairs are Mr. Kelvin Hull (SAGS) and Ms. Ncité Da Camara (SASBi).

If you would like to sponsor and be part of the Bio2020 conference please contact Dr. Cedric Werely, email: CJW1@sun.ac.za or Prof Gerard Tromp, email: gctromp@sun.ac.za.



SASBi Student Council

By Natasha Kitchin

The SASBi Student Council has had a successful year!

We started off the year with sending a team to SciFest Africa in Grahamstown. The festival gives South African scientists the opportunity to share their work, make science accessible, network with one another and provide career guidance and act as role models for our youth in order to encourage the youth to embark on careers and become leaders in these fields.

The SASBi-SC also coordinated their first joint symposium in Cape Town - the SASBi SC/SASHG Young Researchers' Symposium (YRS). The keynote speakers Prof Eugene Cloete, Dr Michelle Daya and Dr Antonel Olckers shared their journeys in science, business and life, providing inspiration to the young researchers who will one day be the future of Southern African Human Genetics. Oral and rapid fire presentations presented by the young researchers at the symposium covered transdisciplinary research supporting the YRS theme - "the bigger picture". The SASBi-SC/SASHG YRS brought together postgraduate students, post-doctoral research fellows and invited national and international scientists and provided a valuable opportunity to learn about cutting-edge research and to network with other young researchers within the field of Human Genetics.

The SASBi-SC also helped coordinate the International Society for Computational Biology (ISCB) Africa Student Council Symposium that was held in Kumasi, Ghana in November. Despite some speedbumps due to visa complications, the symposium ran smoothly. The keynote speakers Prof Christine Orengo and Dr Amel Gouila, along with eight oral presenters, delivered inspiring presentations on their research.

We hope to attend SciFest Africa in 2020, as well as organise a student symposium before the Bio2020 (SASBi/SAGS conference).

Festive Greetings to all!

The SASBi-SC Executive Team



The SASBi-SC and SASHG YRS at the SASBi-SC/SASHG Young Researchers' Symposium.



The International Society for Computational Biology (ISCB) Africa Student Council Symposium held in Kumasi, Ghana in November 2019.

Visit by NCBI Scientist Dr. Marino-Ramirez

By Prof. Helena Kuivaniemi

Dr. Leonardo Mariño-Ramírez from the Computational Biology Branch of the National Center for Biotechnology Information, National Institutes of Health, USA, visited South Africa 5 November – 1 December 2019. This visit was made possible by the support from the Fulbright Specialist Program of the US Embassy, The Center for Bioinformatics and Computational Biology (CBCB) at Stellenbosch University, the University of Limpopo, and SASBi.

Dr. Mariño-Ramírez's visit was part of the ongoing capacity building in bioinformatics, which is urgently needed to help address the severe shortage in computational expertise in the Biological and Health Sciences in South Africa. During his visit, Dr. Mariño-Ramírez assisted in the development and refinement of the curriculum for both undergraduate and postgraduate modules of the bioinformatics curriculum at Stellenbosch

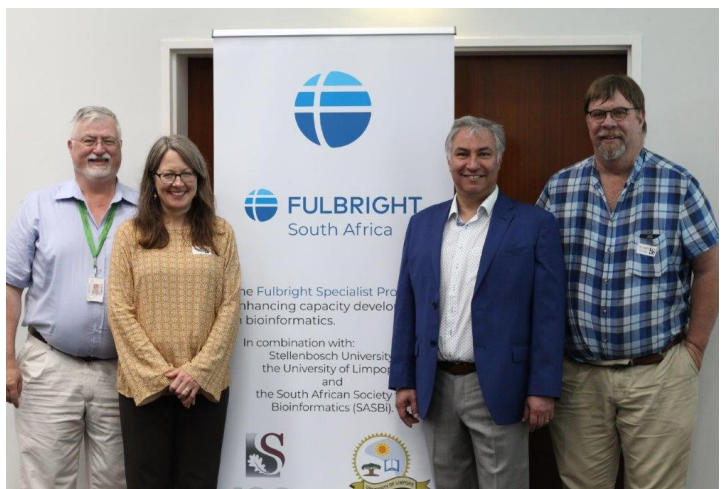
University. He also gave a 3-day workshop in genomic analyses at Stellenbosch University and University of Limpopo. This provided an opportunity for post-graduate students, post-doctoral fellows and members of staff to gain experience in genomic analyses, including transcriptomics, genome assembly and variant calling. In addition, Dr. Mariño-Ramírez gave a special lecture on "Big Data Analysis for Biomedical Research: Current and Future" at the Faculty of Medicine and Health Sciences, Stellenbosch University.

"We will establish a sustainable contact whereby postgraduate students can spend periods of their training with Dr. Mariño-Ramírez's group. The students will continue to benefit from his bioinformatics expertise, and have an opportunity to interact with internationally accomplished bioinformaticians. We believe that this interaction with Dr. Mariño-Ramírez will provide a substantial and positive impetus to training in bioinformatics in South Africa.", said Prof. Hugh Patterson, who hosted the visit together with Prof. Gerard Tromp.

Drs. Patterson (standing on the left), Mariño -Ramirez (standing on the right) and Tromp (not in the picture) organized a workshop entitled "Bioinformatics for the Biologist" at Stellenbosch Campus on 13-15 November 2019.



The same workshop was run at the University of Limpopo, Polokwane, on 20-22 November 2019.



On 11 November 2019, Dr. Mariño -Ramirez gave a lecture entitled "Big Data Analysis for Biomedical Research: Current and Future" at the Faculty of Medicine and Health Sciences, Stellenbosch University. Pictured are SASBi President Prof. G Tromp, A Bell-Mulaudzi from the US Consulate in Cape Town, NCBI Scientist Dr. L Mariño -Ramirez and Prof. H Patterson.

Photograph: Wilma Stassen.



Some members of the Division of Molecular Biology and Human Genetics Bioinformatics Group met with Dr. Mariño -Ramirez on 11 November 2019 to discuss their research projects: Top row: PhD Student T Odia, Postdoctoral Fellow S Meier, Prof. G Tromp, Dr. L Mariño -Ramirez, MSc Student A Ehlers and PhD student M Pauw. Front row: MSc Student A Swartz and PhD Student Dr. E Maasdorp.



Save the Date – Conferences 2020

11 - 13 March 2020: Single Cell Biology, Wellcome Genome Campus, UK
Bursary deadline: 2 January, 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/single-cell-biology-2020/>

18 - 20 March 2020: Genomics of Brain Disorders, Wellcome Genome Campus, UK
Bursary deadline: 7 January, 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/genomics-of-brain-disorders-2020/>

25 - 27 March 2020: Genomics of Rare Diseases, Wellcome Genome Campus, UK
Bursary deadline: 14 January, 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/genomics-rare-disease-2020/>

30 March - 01 April 2020: Proteomics in Cell Biology and Disease Mechanisms, Wellcome Genome Campus, UK
Bursary deadline: 21 January, 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/proteomics-in-cell-biology-and-disease-mechanisms-2020/>

20 - 27 April 2020: Next Generation Sequencing, Wellcome Genome Campus, UK
Bursary deadline: 5 March 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/next-generation-sequencing-2020/>

04 - 06 May 2020: Antimicrobial Resistance – Genomes, Big Data and Emerging Technologies, Wellcome Genome Campus, UK
<https://coursesandconferences.wellcomegenomecampus.org/event-type/conferences/>

12 - 20 May 2020: Low Input Epigenomics, Wellcome Genome Campus, UK
Bursary deadline: 30 January 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/low-input-epigenomics-2020/>

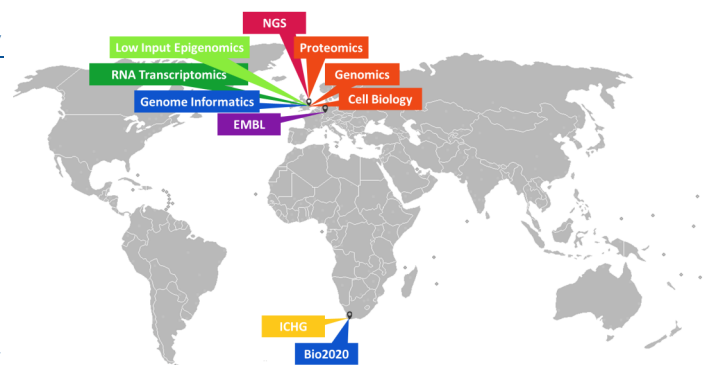
17 - 26 June 2020: RNA Transcriptomics, Wellcome Genome Campus, UK
Bursary deadline: 5 March 2020; <https://coursesandconferences.wellcomegenomecampus.org/our-events/rna-transcriptomics-2020/>

14 - 17 September 2020: Genome Informatics, Wellcome Genome Campus, UK
<https://coursesandconferences.wellcomegenomecampus.org/event-type/conferences/>

22 - 25 September 2020: SASBi/SAGS Conference, Spier Conference Centre <https://www.spier.co.za/conference>, Stellenbosch
<http://sasbi.weebly.com/>

15 - 21 November 2020: EMBL Course: Single-Cell Omics, Heidelberg, Germany; <https://www.embl.de/training/events/2020-SIC20-01/>

1 - 13 March 2021: International Congress on Human Genetics (ICHG), Cape Town. http://www.ifhgs.org/pages/meeting_ichg.shtml



The Science Communication Awards Day

By Dannielle Moore

The Science Communication Awards were created in 2018, resulting from an innovative collaboration between The Conversation Africa and the DSI-NRF Centre of Excellence (CoE) in Invasion Biology. In 2019, the competition was extended to several other CoEs, including the DSI-NRF CoE for Biomedical Tuberculosis Research (CBTBR). The competition was open to Master's and Doctoral postgraduate students within the Centre. To enter students had to submit an 800-word essay describing their research, in the format of a popular science article for publication in The Conversation.

The articles were judged by science journalists at The Conversation Africa, according to the following criteria:

- How well the entrant wrote to length
- How well the entrant avoided jargon, technical language, acronyms
- How well the entrant wrote an article that was clear, concise and easy to read
- How well the entrant answered the 'So what?' question (content relevance)
- Whether the entrant's contribution was based on research
- Was the content new, unusual and/or different

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The prize for each category winner included a R30 000 travel award to cover costs to attend a local/international conference, sponsored attendance at the 2-day Stellenbosch University Science Communication Workshop presented by Dr Jenni Metcalfe and Mr Toss Gascoigne on the 4-5th December, as well as publication of their essay on The Conversation Africa online platform.

Tied for first place in the MSc category was Ms Ayanda Shabangu and Ms Kristen Winkler with their award-winning essays titled “My journey to discovering Tuberculosis” and “Two is better than one” respectively.

The second place in the MSc category was achieved by Ms Katrin Smith with her essay titled “Tuberculosis Threatens our Beloved Big Five”.

According to the judges, Ayanda had a “brilliant explanation of what TB is and the way it works. Kristen made a “great effort to make her article readable and her article was very carefully and cleverly broken down and explained.”

In first place in the PhD category was Ms Raeesa Hussan with her award-winning essay titled “Using nature as an alternative source of drugs to combat TB”; According to the judges, Raessa had good background and context and managed to produce an article that was easy to read and free of jargon.

Ms Naomi Okugbeni received the second prize in the PhD category with her essay titled “Scientists recreate Tuberculosis (TB) infection: Coupling cellular infection models with Fluorescence Microscopy”.



The Conversation competition winners, Ayanda Shabangu (on the left) and Kristen Winkler (absent) (MSc) and Raeesa Hussan (PhD) (on the right).

Photographs: Dannielle Moore

HPC4Africa: Open bioinformatics for Africa

By Trust Odia

A High Performance Computing (HPC) infrastructure can be used for fast, large-scale and parallel execution of processes and tasks (e.g. genome assembly, sequence alignment, database search). Substantially more robust than traditional desktop computers, HPC is frequently employed for big data analysis in fields such as genomics, bioinformatics, computational sciences, geology, engineering and astronomy.

In Africa, bioinformatics, computational biology and biomedical research are rapidly growing: more and bigger sets of data are being generated. Many African institutions are actively producing data, but few have access to HPC to analyse these data, due to the limited infrastructure in the continent, or accessible by African institutions. This hinders the progress of research related to analysis of these large sets of data. The few institutions in Africa with an HPC facility operate with regional and federated access, which limits access from other regions of the continent.

I am passionate about open science, open tools and open data. My aim for the HPC4Africa project is to set up an open-access HPC or compute resource for big data analysis in African institutions (see <https://elifsciences.org/labs> and <https://github.com/trustodia>). The availability of on-demand cloud computing platforms, such as Amazon Web Services (AWS), Azure and Google Cloud, means that I can set up the HPC on one of these existing platforms. This dramatically reduces the technical difficulty in setting up and maintaining this compute resource.

I first took this idea to Mozilla Global Sprint 2018, where I was able to share, discuss and collaborate with some participants. The major achievement at this event was the setting up of the existing

Git repositories that house the project on local hardware infrastructure for development.

eLife’s Innovation Sprint 2019 provided a venue for me to showcase and work on this project (see the Sprint’s [project roundup](#)). I met Ivo Jimenez, Aziz Khan, Giorgio Sironi and Nick Duffield, who are experienced and skilled in DevOps, database management, HPC administration and user interface design, respectively. We were able to set up a virtual HPC on AWS, which is currently running, and installed some tools and scripts for 16S rRNA data analysis. Also, I sourced a number of other brilliant alternative solutions for the project, including potentially implementing [Popper](#), an open-source tool for conducting scientific explorations following a DevOps approach.



Trust Odia, todia@sun.ac.za

I hope that my virtual HPC can serve as a blueprint for future set-ups. Moving forward, one of the first next steps for this project is to apply for funding to purchase compute resources on an existing cloud computing platform. Ultimately, I hope to help other bioinformaticians in Africa access and set up similar virtual HPCs and analyse their data. I also wish to scale up the current prototype to allow multiple users to access the open bioinformatics tools and share their own. This HPC instance could serve as a sandbox for computational biologists and research software developers to build their own open tools, conduct small-scale user testing and gather feedback. In the long run, by encouraging a culture of sharing and openness, I hope that this will allow the African bioinformatics community to see the benefits of open collaborations, incentivise researchers to work together more often, and raise the visibility of African research.

I am using this post as an opportunity to make a call for contributions and collaboration on this project, especially with other researchers and software engineers who would like to explore setting up similar cloud computing resources for the community.

Student Profiles @ Stellenbosch University

Marina Pauw

PhD Candidate: Bioinformatics (Stellenbosch, Tygerberg Campus)

What is your current project?

I am designing a desktop application software for the QC of SWATH mass spectrometry.

Please fill us in on your career up to this point:

*My background has been in microbiology with a masters working on *S. cerevisiae* in wine biotechnology. I proceeded to work as a researcher in the agricultural industry, then in QC in the pharmaceutical industry. During my position in QC I started doing programming courses in my free time for extra intellectual stimulation and I loved it! In the beginning of 2018, I was lucky enough to be able to join Prof Tabb's lab for my PhD.*

If you could give advice to students who are new in the field, what would you say?

Do not let other people's opinion of you or even your own marks define you. Sir John Gurdon, Nobel-prize winner who is sometimes referred to as the godfather of cloning did famously bad at school and when his biology teacher was told he wants to go into science she reportedly laughed and called the notion ridiculous. If he could achieve so much without the necessary support, just think of what you could achieve!

Do you have a favorite computer language?

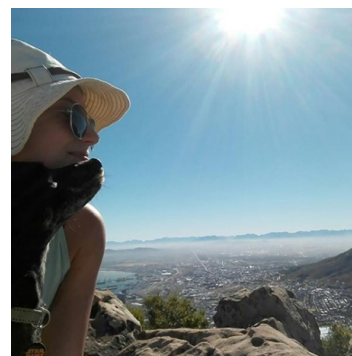
C# - the language is so logical it just makes sense. :)

What are your hobbies/activities you do in your free time?

Hiking, playing piano/flute or sometimes playing games like DOTA with friends. Then I also have two fur babies who like to play and demand attention all the time.

When did you first realize you love science/computers?

Chemistry and Math's were my favorite subjects in school and in grade 8, shortly after learning about the physical properties of different metal ions, the white grout in our newly tiled bathroom turned a rusty brown. While my parents were ready to demand the builders fix their mistake, I realized that the builders had used our water to mix the grout and we were able to trace it back to a high iron content in the water pipes somewhere in our neighborhood. It seems really simple and obvious now, but this first rush of dopamine at forming and testing a hypothesis had me hooked.



Marina Pauw

"Do not let other people's opinion of you or even your own marks define you."

Ncité Da Camara

PhD candidate: Bioinformatics (Stellenbosch, Tygerberg Campus)

What is your current project?

My PhD research project is entitled, "Tools for Analysis of Luminex Immunoassay Data: Development of a Robust Pipeline and Best Practices Recommendations" and aims to develop, implement, and evaluate an analytical pipeline to standardize pre-processing of multiplexed enzyme-linked immunosorbent assay (i.e. multiplex ELISA) data generated by the Luminex platform.

Please fill us in on your career up to this point:

I successfully completed a BSc degree in Biodiversity and Ecology at Stellenbosch University in 2013. In the following years, I successfully completed and obtained a BSc Honours degree in Molecular Biology (Bioinformatics) (2014) and an MSc Master's degree in Molecular Biology (Bioinformatics) (2016) at the Centre of Excellence in Biomedical Tuberculosis Research at the Tygerberg medical campus at Stellenbosch University. My Honours and Master's projects involved both bioinformatics and wet bench laboratory work with the view to ensure that I develop in both perspectives of molecular research. Currently I am registered for a PhD degree program in Molecular Biology (Bioinformatics) in the Division of Molecular Biology and Human Genetics, Department of Biomedical Sciences, Faculty of Medicine and Health Sciences at Stellenbosch University, Western Cape, South Africa.

If you could give advice to students who are new in the field, what would you say?

Do not be afraid, you are not alone. Embrace the unknown, keep on pressing on. Enjoy the journey, before you know you will be done.



Ncité Da Camara

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If you were an animal – what would you be and why?

An elephant, although they are big in stature they are loving, loyal, unified and protective. They have a very good memory and can travel far and wide, leaving a mark where they go.

"let us not grow weary in doing good"

When did you first realize you love science/computers?

My passion for science and computers became evident in high school and during my postgraduate degrees. My BSc Honour's and Master's projects involved both wet bench work as well as bioinformatics, which boosted my interest in computers while I discovered the power, relevance and significance of the interdisciplinary field of bioinformatics. My BSc Honour's project involved whole genome sequencing of Mycobacterium tuberculosis, the cause of tuberculosis (TB), to identify mutations resulting in drug resistance. I discovered a novel cause of pyrazinamide (PZA) resistance, namely deletion of the pncA gene, which encodes an enzyme, pyrazinamidase, necessary for activating the prodrug PZA. The results were published and in September 2015, I presented the results at a conference in Sydney, Australia. There, I realized how my work influenced public health locally and globally. I also learnt the importance of doing science that produces solutions for public health problems as well as the need to engage communities with this information. I enjoyed the opportunities for networking with leading researchers. I also gained greater insight and new ideas for research.

Is there something you feel passionate about that you would like to say to other students in the scientific community?

"... let us not grow weary in doing good..." (Galatians 6:9).



Ashley Ehlers

MSc candidate: Bioinformatics (Stellenbosch, Tygerberg Campus)

What is your current project?

Comparing raw proteome data from two different types of mass spectrometry instruments in the context of biomarker discovery for paediatric tuberculosis diagnosis.

Please fill us in on your career up to this point:

At the top of Maslow's hierarchy of needs is self actualization, referring to a person's full potential and the realization of that potential. My student career path is molding my potential for industry, yet choosing a particular niche in industry hasn't occurred to me yet. I am still finding my way to self actualisation from love/belonging.



Ashley Ehlers

If you could give advice to students who are new in the field, what would you say?

Practical intelligence is proven to be a much higher predictor for a successful career compared to IQ – work on that!

"Practical intelligence is proven to be a much higher predictor for a successful career compared to IQ."

Do you have a favorite computer language?

R/CRAN – it is the first computer language I learned.

What are your hobbies/activities you do in your free time?

Listen to podcasts such as Impact Theory, Women of Impact and OnPurpose.

If you were an animal – what would you be and why?

Tortoise – slow and steady wins the race.

If you could change one thing about yourself, what would it be?

Changing one thing about myself would imply that I can clearly distinguish the negatives and positives about myself without the bias of my previous beliefs and ideas that might no longer serve me.

When did you first realize you love science/computers?

I was about 12 when my grandfather bought me my first Toshiba, and since that time I have always loved getting new tech and fixing up my old broken computers.

Is there something you feel passionate about that you would like to say to other students in the scientific community? (For example, "Please add your data to a repository once its published", "Please stop using the word "uhm" in presentations" or "Please be nicer to fellow students".)

Please time your presentation before your actual presentation.

Please describe what you were like at age 10.

(Continued on page 8)

The only memory I still have is asking for 10 tarts for my 10th birthday party because I hated cake.

What do most people not know about you?

I have a purple belt in karaté.

What do you think you are best known for around the lab?

Being punny.

Do you have a science joke to share?

Na (sodium), I don't.

Darryn Zimire

MSc candidate: Bioinformatics (Stellenbosch, Tygerberg Campus)

What is your current project?

Evaluating the effects of sequencing depth, read length and base-call error on experimental design of RNA-sequencing experiments. Developing a command-line tool for experimental design, implemented in the Python programming language.

Please fill us in on your career up to this point.

I pursued an undergraduate degree in Biotechnology, followed by an internship at the South African National Bioinformatics Institute. After completing the internship, I enrolled for the Biotechnology honours programme and completed my honours degree in the forensic DNA laboratory at the University of the Western Cape. I then realised that pipettes and I were not good friends and that I really enjoyed the year spent in the field of bioinformatics and decided to do a Masters degree focusing on bioinformatics which I'm currently busy with.

If you could give advice to students who are new in the field, what would you say?

Be persistent and open to learning continuously. Google is your best friend, embrace it.

Do you have a favorite computer language?

Definitely the Python programming language.

What are your hobbies/activities you do in your free time?

I consider myself an amateur cover artist and enjoy playing the guitar.

If you were an animal – what would you be and why?

I would go for a butterfly. This animal is not quite impressing at first glance, but if you think twice, the butterfly is always at some point of development, waiting on the moment when it is able to fly and when it reaches that point, everyone marvels at its beauty.



Darryn Zimire

"Be persistent and open to learning continuously."

Science Bytes

By Dr. Elizna Maasdorp

In this Science bytes section, we look back at a highlight of the past century (the structure of DNA), the past year (the Nobel Prize in Physiology or Medicine) and forward to the festive season's music and dancing.

A Nature News and Views article reminds us of the work and drama that went into discovering the structure of DNA (Figure 1). Read it at https://www.nature.com/articles/d41586-019-02554-z?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+nature%2Frss%2Fcurrent+%28Nature+-+Issue%29.

The Nobel Prize in Physiology or Medicine for 2019 went to 3 scientists for their work on how cells sense and adapt to oxygen availability (Figure 2). Read the scientific background to their body of work at <https://www.nobelprize.org/prizes/medicine/2019/advanced-information>.

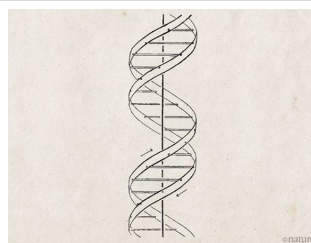


Figure 1 | Drawing of the DNA double helix produced by Crick's wife, Odile.



Figure 2 | The Nobel Prize in Physiology or Medicine 2019.

And finally, looking forward to the festive season's celebrations, you can say clever things about music at the family dinner table if you read this article about the diversity and universality of music from countries across the globe - an ambitious project that collected data on song characteristics from hundreds of countries by annotating available recordings, utilising a citizen science approach and then analysed it statistically to come to their conclusions (amongst others) that music is universal in the studied societies and that everybody dances!

<https://science.sciencemag.org/content/366/6468/eaax0868>

"Enjoy the festive season!"

Editorial Team: *This issue brought to you by N Da Camara, M Pauw, A Ehlers, E Maasdorp, N Kitchin, D Moore, T Odia, H Kuivaniemi & G Tromp*



The Bioinformatics Group from the Division of Molecular Biology and Human Genetics, Stellenbosch University and their family members gathered at Zevenwacht Wine Estate <http://www.zevenwacht.co.za> on 10 February 2019 for their 1st Annual Picnic.

