RESEARCH HORIZONS

THE OFFICIAL NEWSLETTER OF THE UNIVERSITY GRANTS OFFICE

April 2022

Volume 30

CONTENT

Ahmedabad University

A new Imaging and Flow Cytometry Facility at Ahmedabad University

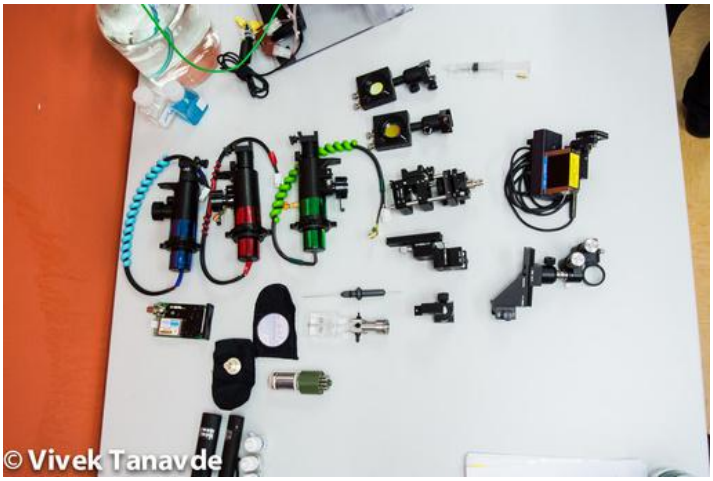
The Department of Biotechnology (DBT), Government of India, has funded Ahmedabad University to establish a new Imaging and Flow Cytometry Centre, under the SAHAJ program.

The DBT SAHAJ program provides substantial funding for scientific equipment and supports the establishment of national research facilities for institutions engaged in research in frontier areas of Life Sciences. The proposed Imaging and Flow Cytometry Facility will serve the greater Ahmedabad region including Ahmedabad University and surrounding research institutes, biopharmaceutical industry, agribiotech industry and veterinary industry. The project is led by Vivek Tanavde as Principal Investigator and Ashutosh Kumar as Co-Investigator, respectively.

Flow Cytometry is a powerful technique for analysing and sorting cells based on their properties. This technique has wide applications in vaccine research, leukaemia diagnosis, stem cell research, agribiotechnology, animal husbandry cancer research and many other areas of biology. Some applications include monitoring the immune system for studying vaccine responses, determining DNA content of seeds to improve plant yields, separating chromosomes of animals for veterinary research and developing novel diagnostic methods in oral cancer.

The facility at Ahmedabad University will have a state-of-the-art cell sorter and an analyser capable of analysing at least 18 cellular parameters. This technology will impact several existing and future research programs at Ahmedabad University. Vivek Tanavde's research group works in the area of oral cancer. Flow cytometry will enable enumeration of extracellular vesicles from saliva of oral cancer patients in addition to enabling sorting of specialized cells such as cancer stem cells. Krishna Swamy's group focusses on understanding mechanisms of evolution in microorganisms such as yeast and bacteria. The facility with a Biosafety level 2 containment unit, will enable the sorting of yeast cells based on DNA content and will aid these experimental approaches. Subhash Rajpurohit's laboratory is interested in characterizing a group of specialized cells in the fruit fly *Drosophila melanogaster*. The facility will help to characterize and sort these cells, which play a role in the response of the flies to climatic stress.

The new facility will be housed at the School of Arts and Sciences building and is expected to be fully operational by March 2023.



A representative image showing the parts of a flow cytometer separated on a table.
Image courtesy: "Build your own cytometer laboratory" workshops conducted at Ahmedabad University.

More information on the DBT SAHAJ program can be accessed at https://dbtindia.gov.in/schemes-programmes/research-facilities-resources-technology-platforms/scientific-infrastructure

In conversation with Pallavi Vyas

Pallavi Vyas is an Associate Professor of Economics and Public Policy at, Ahmedabad University. Her research interests include Labour Economics, Human Capital Theory, Public Health, Gender and Discrimination. We spoke to her about her research. Excerpts from the conversation.

Please could you tell us about your research interests and how these evolved?

I have always been interested in the application of economics to real world problems and have worked in different sectors, which has exposed me to different types of analyses in the different areas of economics. I graduated with a Master's degree in Economics and then worked as a research assistant at a non-profit organization in Santa Monica in California, USA and then as an economist for an economics litigation consulting company in Los Angeles, USA before deciding to pursue my PhD. Subsequent to the PhD, I worked at the World Bank and now I am in academia.

During my graduate studies in the U.S., I decided to focus on the issue of teen childbearing in the US. The reason for my interest in this topic is that children born to teenage mothers are more likely to have severely compromised lives. For example, they are more likely to be teen mothers themselves, to be involved in crime and to be incarcerated. In the early 1990s, Black and Hispanic women in the USA had very high teen pregnancy and birth rates. However, these rates have gone down drastically over time and we still do not understand why this is the case. I continue to look at the relationship between increasing incentives to work and to enroll in college and child bearing patterns of teenage women.

When I returned to India, I became interested in the reasons for the skewed sex ratio in different parts of the country. I saw this as discrimination in its fullest form and started researching in this area. In one research project I am exploring the efficacy of the Pre-Conception & Pre-Natal Diagnostic Techniques Act, 1994 (or lack thereof) by using an exogenous shock, namely COVID 19. My work is in the process of exploring the reasons for the rise in sex ratios during the first wave of the pandemic.

In line with this area of research, I heard and read about the widespread prevalence of verbal and physical violence against women for not bearing a son. This was for no fault of theirs and I realized, for us as a society, this was a thorn in our side. This is the subject of our J-PAL grant.

Please could you tell us about your research supported via the J-PAL initiative?

The research supported by the grant started a couple of years ago when my co-author Aditi Upadhyay and I were exploring the prevalence of domestic violence against women who do not bear a son, that I discussed earlier. To better understand the issue, we spoke to doctors at hospitals both in Ahmedabad and Anand as well as government officials. We were interested in procuring data that we could use in our study but quickly realized it was hard to come by. We were advised to file an RTI for data on sex ratios from the different districts but sadly drew a blank there as well.

We finally undertook our own a pilot survey on the subject in four wards of Ahmedabad, supported by a Seed grant from Ahmedabad University. The results from the pilot project gave us a sense of how sensitive this issue was to study, and that we would need a more sophisticated survey and research design to arrive at meaningful findings.

At that juncture, we came across the J-PAL opportunity and decided to apply for funding support. J-PAL holds you to a high standard and so you have to have worked out a lot of issues before submitting a grant proposal. Luckily for us we had been working on the question for a considerable period of time with our pilot survey and that helped us put together a strong proposal in a relatively short period of time. We are of course delighted to have received the J-PAL grant. I really appreciate the fact that this area of research is being acknowledged by the international community.

Please could you tell us about your collaborations with researchers at the World Bank?

The World Bank has a lot of brilliant researchers and one learns a lot along the way while collaborating with them. Some of my projects include calculating poverty rates for India in the absence of consumption expenditure data and the relationship between anthropometric indicators, such as stunting and wasting, and wealth in Pakistan, India and Sri Lanka

The World Bank also has access to several novel sources of data. In one of my collaborative projects, we are looking at access to justice in 14 different countries. The survey was conducted by an organization called the Hague Institute for Innovation of Law (Hiil) in the Netherlands. We were also able to analyze labour force participation of women and youth from a labour survey conducted in the Maldives. These types of data are often hard to access.

Please could you tell us about how research on gender issues can help to inform public policy for a country?

Rigorous research can inform policy in a very effective way. For example if through a research study we are able to understand how to improve women's decision making power for themselves, we can implement policies that would help women get more agency in their lives. Without research based evidence, policy may not consider potentially harmful unintended consequences and thus result in a huge waste of money.

As a researcher, I get excited and find research meaningful if I think it is going to inform the body of knowledge that could lead to better policy. If I thought my research was going to sit on somebody's shelf I don't think it would be as motivating for me.

I think that teaching and research go hand in hand. As a professor, you become a better researcher as theoretical frameworks and more current empirical papers become a part of the course curriculum you teach; and likewise, when you research more you become a better professor as you incorporate your research in your teaching which gives students more exposure to applications.

More details about the J-PAL initiative at https://www.povertyactionlab.org/

IPCC report

The Intergovernmental Panel on Climate Change (IPCC) recently released a report on Climate Change 2022: Mitigation of Climate Change. The report provides an assessment of global progress with climate change mitigation, analysis of the sources of global emissions and developments in emission reduction. The report was approved in a meeting attended by over 350 government delegates representing the United Nations member governments.

Professor PR Shukla, Minal Pathak, Shreya Some and Purvi Vyas from Ahmedabad University are drafting authors and Editors on this report. Professor Shukla is the Distinguished Professor at AMSOM and directs the Global Centre for Environment and Energy and Minal, Shreya and Purvi are part of the Global Centre.

The full report and a Summary for Policymakers can be downloaded from https://www.ipcc.ch/report/ar6/wg3/

In conversation with Subhash Rajpurohit

Subhash Rajpurohit is an Associate Professor at the School of Arts and Sciences, Ahmedabad University. His research interests are focussed on understanding species response to climate change. He is additionally the Chair of the PhD Programme for Biological and Life Sciences at Ahmedabad University. We spoke to him about his research and emerging trends in life sciences. Excerpts from the conversation.

Please could you tell us about your research interests?

I grew up in the middle of the Thar desert, where I experienced climatic variables and stresses first hand. Later on, my professional journey took me towards understanding the responses of organisms to climatic stresses such as heat and drought. During my PhD, I began studying the effect of geographical changes such as latitude and altitude, on the characteristics of a tiny fruit fly called *Drosophila melanogaster*. I wanted to understand the response of these flies to drastic changes in temperature and humidity seen across different regions of the world. I collected fruit fly populations from sixteen locations all across India from the North to the South and also spent time in the Himalayas, collecting flies from different altitudes.

We would bring these populations back to the laboratory and then "phenotype" them for their external appearance and parameters such as drought tolerance and starvation tolerance. Comparative analysis of fly populations collected from all across India revealed a clear pattern: as the latitude changed, so did the tolerance of the flies to water shortage. We characterized several trait "clines" in fruit flies, where there was a measurable gradient in biological traits of individuals in this species across geographies.

During my post-doctoral training, I worked on another fruit fly called *Drosophila mojavensis*. This remarkable fly thrives on the cactus bushes in the Sonoran desert and can manage without water for several days, surviving in the blistering 50 degrees Celsius heat of the desert. We were able to identify specific key candidate genes involved in heat and drought tolerance.

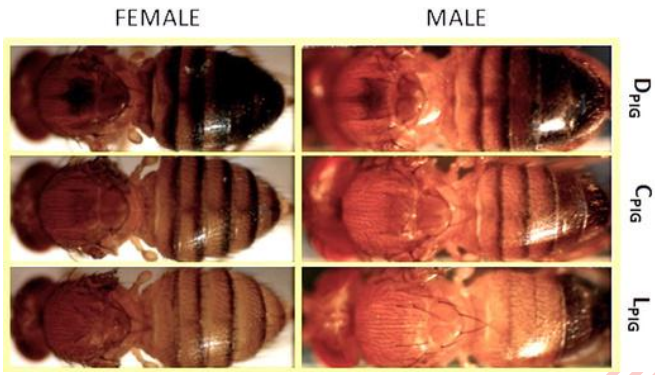
I have continued working on the mechanisms of climatic stress tolerance in fruit flies. We generally work with natural fruit fly populations. We have a dedicated fly room in our laboratory to house fly populations collected over the years. While most fly groups work with laboratory-raised flies, we work with natural fly populations. Hence, we now know a lot about the field life of these species. When we find something interesting at the ecological level, we are able test those observations in the laboratory. Our approach is to go all the way from 'macrophysiology to molecules'.

Please could you tell us about your research supported via the SERB Core Research grant?

When analysing the flies collected from different latitudes in India, we found that the coloration of the flies changed across latitudinal range. Within a single species of flies in our collections, we observed that all the northern flies had darker bodies than the flies collected from southern India. This was a eureka or spark moment in our journey.

The body colouration of the flies are largely because of the distribution of melanin pigments in the hard cuticle that surrounds their bodies. The cuticle is extremely important for insects as it prevents water loss. Melanin molecules are hydrophobic in nature and this is important for retention of water. Flies growing at higher latitudes somehow make changes in their cuticles and pigmentation, which helps them retain water better in their bodies.

Small organisms such as insects have small bodies and a large surface area to volume ratio. Like newborn babies, they are more prone to desiccation. Hence, they have evolved several mechanisms to ensure water retention. Firstly, they may have a larger starting volume of water in proportion to their body size. Secondly, insects can tolerate more extreme drops in water levels and reviving in the presence of water. Furthermore, they can regulate the rate of water loss thanks to their cuticles. For the SERB-funded project, we are trying to understand the chemical architecture of the cuticle in insects.



We would like to characterize the molecules from the top layer of the cuticle, which is a waxy reflecting layer helping to retain water molecules inside. We induced changes in the cuticles of our fly populations and selected flies for darker and lighter coloration. We have isolated flies which ranged from being extremely dark-bodied like black coal granules to flies with pale yellow cuticles. We are now using specialized techniques from the worlds of physics and chemistry, such as Raman spectral analysis, NMR spectroscopy, FT-IR spectroscopy and electron microscopy in our experiments. In doing so, we can integrate across disciplines. Such an approach is really important in modern biological life sciences.

Please could you tell us about your plans for collaborations with the University of Exeter, supported by an EMBO Fellowship?

The main goal of this project is for us to understand the molecular composition of fruit fly cuticles. The cuticles have a set of signature molecules called hydrocarbons, which help the flies both to tolerate stress and to communicate with each other. These hydrocarbons are complex and fascinating, and are very difficult to break down. We would like to analyze the hydrocarbons in flies grown under different stress conditions and correlate this with their behaviours. We would like to understand if the flies produce hydrocarbons in real-time in response to stress and how such responses map to their evolutionary history.

I have known Professor David Hosken's group at the University of Exeter in the UK for several years. I realised that the EMBO Fellowship would be a fantastic opportunity for us to build a collaboration with his group. Their group is well equipped for this kind of analysis and working together we can ask some advanced level questions on hydrocarbons in fruit flies. Our laboratories have been working in close collaboration. I think we will be running close to 800 samples from several different experiments. I also look forward to travelling to Exeter soon to advance our discussions and work.

Please could you share your views on the future of life sciences research?

I think this century is already a century for the life sciences! Biologists are certainly going to have a huge impact. The world is changing very rapidly and so are all the technologies available for research. This is even more important for our students and the kinds of experiments they can do now and in the future.

In the current times, biologists need to break out of silos and integrate life sciences research with many other fields. Modern problems require multidimensional thinking and hence scientists need to be more accommodating in order to be able to collaborate with different people. Our students of the future should be open-minded and be willing to work across fields. If biologists have the ability to interact effectively with chemists, physicists, data scientists and other disciplines, they will be able to make the most of opportunities that come their way. There is a huge scope for integrative biology in today's time and COVID has taught us all fantastic lessons about optimising resources and designing approaches. Novel materials, human-machine interactions, and organs on chip are some of the exciting fields students should explore in biological and life sciences.

Our landscape is going to change dramatically in next few decades and this will have a big impact on biodiversity. Climate change is happening and will continue to affect human beings, other species, and many aspects of our lives including agriculture. We are going to see novel diseases and their spread to novel habitats. Biologists willhave a huge role to play here.

Scientists should interact with government officials and forest officials, industry and other sectors. Industry should also take this seriously and support initiatives to explore such topics and for people to contribute in different ways towards this.

More details about the SERB Core Research grant at https://www.serbonline.in/SERB/emr?HomePage=New

More details about EMBO funding at https://www.embo.org/funding/

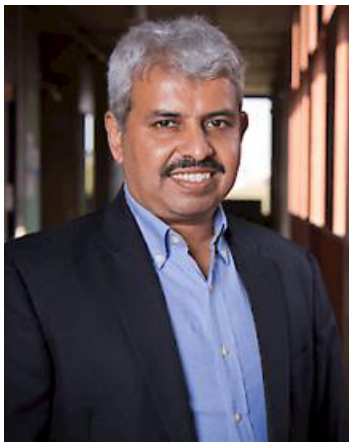
Awarded grants

(For the period January- March 2022

External grants:

Ratna Ghoshal
Sponsorship fund for Student fellowship
Island Foundation Trust, USA
2.2 lakh INR, 1 year

Ratna Ghoshal
"**Monitoring stress physiology of mugger crocodiles (Crocodylus palustris) within a human-dominated landscape of central Gujarat, India**"
Rufford Foundation, UK
6.5 lakh INR, 1.5 years



Vivek Tanavde and Ashutosh Kumar
"**Imaging and Flow Cytometry Centre at Ahmedabad University**"
DBT-SAHAJ project
Department of Biotechnology
448 lakh INR, 5 years

Ahmedabad University Startup grant:

Sutapa Mukherji
"**Properties of gene regulatory networks associated with bacterial stress response.**"
11.35 lakh INR, 2 years

Research Seminars

(For the period January - March 2022)

Amrut Mody School of Management

- Sankarshan Basu, Professor, Finance & Accounting Area from IIM Bangalore. *Business School for the Future*. February 22, 2022.
- Scott Roulier, Fulbright-Nehru Scholar. *Spatial Analyses of Social Phenomena*. March 2, 2022.
- Minal Pathak, Senior Scientist with Working Group III of the Intergovernmental Panel on Climate Change (IPCC) at the Global Centre for Environment and Energy, Ahmedabad University. *Assessing India's Low Carbon Transition in the Context of Sustainable Development*. March 10, 2022.
- Abhishek Kar, Postdoctoral research scientist at Columbia University, doctorate in 'Resources, Environment and Sustainability' from the University of British Columbia. *Application of the Transtheoretical Model of Change to Examine LPG Use in Rural India*. January 7, 2022.
- Sanket Vatavwala, Doctoral Student IIM, Indore. *A Framework of Customer Engagement in the Context of Business-to-Business Marketing*. January 18, 2022.
- Sanket Patil, Doctoral Candidate, Kellogg School of Management, Northwestern University. *Strategic Justifications*. January 25, 2022.
- Yogeshwar Bharat, PhD candidate, Michigan State University. *Credit Constraints, Bank Incentives and Firm Exports: Evidence from India*. January 27, 2022.
- Ajay Shah, Director, xKDR Forum, Research Professor of Business, Jindal Global University, Former President of Centre for Monitoring Indian Economy (CMIE) & Moumita Roy, Assistant Professor, Amrut Mody School of Management, Ahmedabad University. *Repeal Of the Farm Bills: Good Riddance or A Lost Opportunity?* January 15, 2022.
- Aashish Chandorkar, Counsellor - Permanent Mission of India to the WTO (Govt of India) Former VP Capgemini Invent, Founder, Smahi Foundation of Policy and Research & Pallavi Vyas, Associate Professor, Amrut Mody School of Management, Ahmedabad University. *Infrastructure Development In India: Are We There Yet?* January 22, 2022.
- Jaithirth (Jerry) Rao, Founder and Former CEO, Mphasis, Author, Economist Gandhi & Sarthak Bagchi, Assistant Professor, School of Arts and Sciences. *Gandhi, The Economist: Shining A New Light On The Mahatma*. January 29, 2022.
- Rukmini S, Independent Data Journalist, Author. Whole Numbers and Half Truths: What Data Can and Cannot Tell Us About Modern India & Mona Mehta, Associate Professor, School of Arts and Sciences. *India And Its Numbers: Seeing Modern India Through Data*. February 5, 2022.
- Sandeep Dayal, Managing Director and EVP at Cerenti Marketing Group, LLC Author. Right between The Ears: How to Use Brain Science to Build Epic Brands & Ravi Miglani, Professor of Practice of Management, Director - Executive Education, Amrut Mody School of Management, Ahmedabad University. *Entering The Brain Of The Consumer - Building Brands That Connect*. February 19, 2022.
- Shrayana Bhattacharya, Senior Economist, World Bank, Social Protection and Jobs Practice Author. Desperately Seeking Shah Rukh: India's Lonely Young Women and the Search for Intimacy and Independence & Tejaswini Niranjana, Director, Centre for Inter-Asian Research. *The SRK Mythos: Men, Money, Misogyny, And the Struggles of the Indian Woman*. March 19, 2022.

Research Seminars

(For the period January - March 2022)

School of Arts and Sciences

- Guillaume Wadia, Harvard University, USA. *Intelligence and Eco-governance in the French Protectorate of Morocco*. 1927-1934. February 7, 2022.
- Ashim Rai,Tata Institute of Fundamental Research, India. *Exploring motifs of cytoskeletal regulation: from lipid clustering to actin remodeling and beyond*. February 8, 2022
- Suchetana Banerjee, PhD from Jadavpur University, India. *Locating locally adapted Brechts: methodology to study theatre in India*. February 14, 2022.
- Rahul Ghosal, North Carolina State University, USA. *Distributional data analysis via quantile functions and its application to modeling digital biomarkers of gait in Alzheimer's disease*. February 24, 2022
- Sharvari Shastri, University of Chicago, USA. *Performance on the Record: Theatre and/as Archive in Modern India*. March 1, 2022.
- Maya Jasanoff, Harvard University. *Writing Writers' Live*. February 2, 2022.
- Maya Jasanoff, Harvard University. *Stories for our Times: Writing History in the 21st Century*. February 9, 2022.
- Gautam Menon, Ashoka University. *Making Interdisciplinarity Work for You*. March 9, 2022.
- Sayan Goswami and Nithin George, Ahmedabad University. *Using Experimental Psychology to Explain the Behaviour of Machine Learning Algorithms*. February 16, 2022.
- Sujata Parsai, Director of the Lalbhai Dalpatbhai Museum, Ahmedabad. *Stories of Collections, Stories Collections Tell*. February 23, 2022.

School of Engineering and Applied Sciences

- Punnag Chatterjee, PhD at NC State University, U.S. *Multifunctional Structures for energy capture*. January 24, 2022
- Ramesh L. Gardas, IIT Madras, India *Tips on Scientific Literature Search and Writing Skills: Do's & Don'ts*. February 9, 2022.
- Gayathri Subramanyam, ITC Lifesciences & Technology Centre Bengaluru, India, *Applications of Surfactants in Personal Care Products*. February 22, 2022.
- Arnav Jhala, North Carolina State University, USA. *Narrative Report Generation for Large Structured Email Datasets*. March 23, 2022.

Publications

(For the period January- March 2022)

Articles in Refereed Journals

Desai B, Mukherjee S, Whitaker N, Ghosal R (2022) Anecdotal observations of 'double clutching' behaviour in captive Mugger crocodiles (Crocodylus palustris). Behaviour, DOI: https://doi.org/10.1163/1568539X-bja10153.

Bhalodiya J., Lim Choi Keung S. & Arvanitis T. (2022). Magnetic resonance image-based brain tumour segmentation methods: A systematic review. Digital Health, 8(1), 1-19. 10.1177/20552076221074122.

Saxena S. (2022). Is Word-Meaning Denoted or Remembered? Śālikanātha's Cornerstone in Defence of Anvitābhidhāna. Journal of Indian Philosophy, 50(2), 285-305. https://doi.org/10.1007/s10781-021-09503-z.

Conference proceedings and presentations

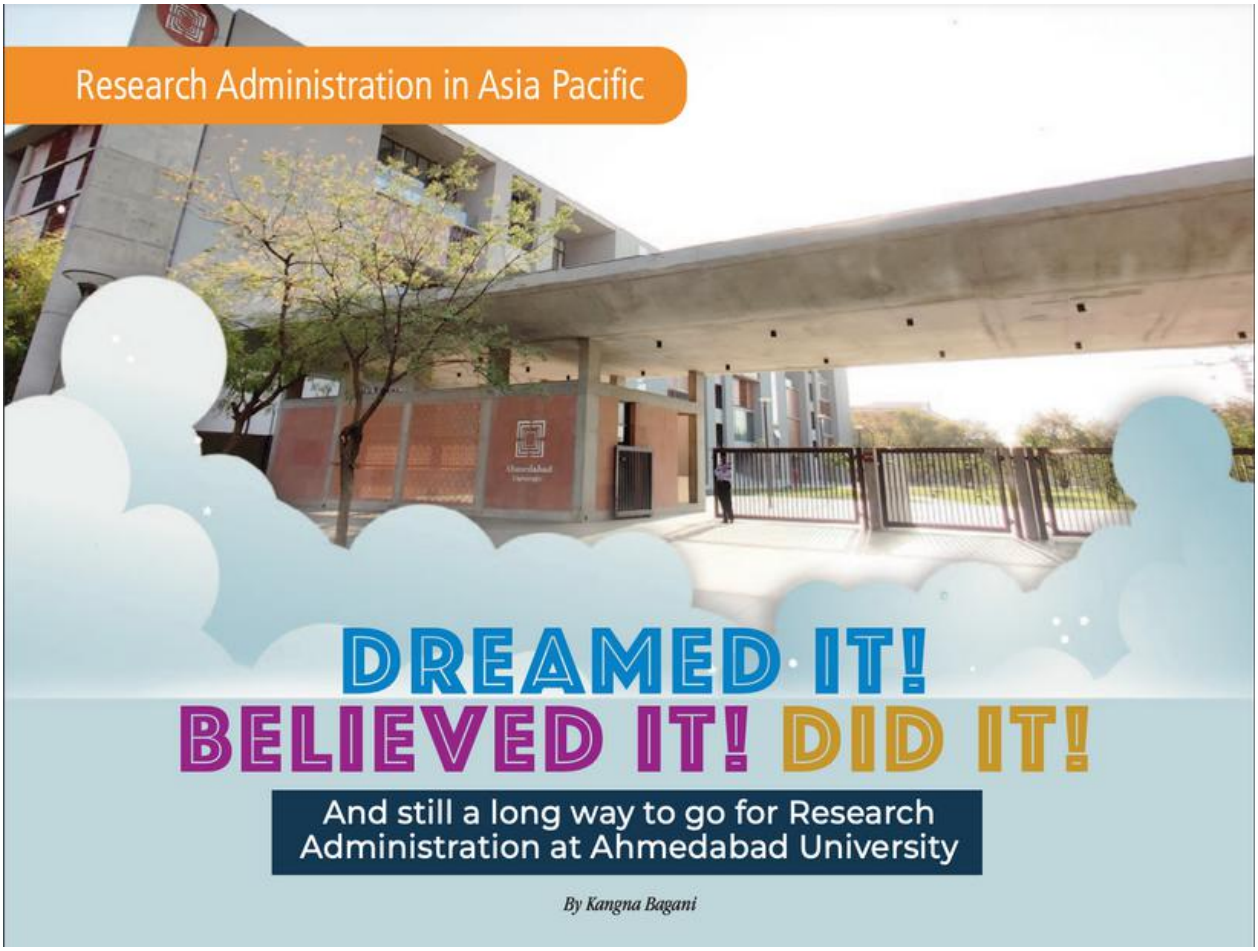
Patel K. & Pattanayak D. (2022). Generative Adversarial Networks: Solution for Handling Imbalanced Datasets in Computer Vision. IEEEXplore Proceedings: 2022 International Conference for Advancement in Technology (ICONAT), January 21-22. 1-6.

University Grants Office News

Ms Kangna Bagani, Executive Assistant to the Dean of Research and Graduate School, was invited to write an article for the NCURA Magazine, on the establishment of the University Grants Office at Ahmedabad University. NCURA is the National Council of University Research Administrators in the USA and the NCURA Magazine is accessed by members of its global network. The article, with due permissions from NCURA, can be accessed at

https://www.ncura.edu/Portals/0/Docs/Magazine/RAinAsiaPacific_NCURAMagazine_MarchApr2022.pdf

The University grants office thanks all members of the community at Ahmedabad University for their support and looks forward to developing its services further.



Funding compendium

RESEARCH GRANTS, FELLOWSHIPS AND PRIZES

Agency: Abdul Latif Jameel Poverty Action Lab (J-PAL)
J-PAL Initiative: Worker Prosperity Initiative
Initiative remit: To build an evidence-based playbook of strategies to increase opportunities for workers, reduce the economic barriers and social challenges in labor markets, and ensure that all workers share in the prosperity generated by technological change and economic growth. The initiative supports randomized evaluations of strategies and innovations to increase opportunities for workers, reduce the economic barriers and social challenges in labor markets, and address the problems associated with the changing nature of work.
Applicant eligibility: Open to J-PAL affiliated professors, post-doctoral fellows, and invited researchers
Budget provisions: Full research projects are typically awarded $150,000 to $250,000, with a maximum budget of $400,000. The award period may be up to three years. Pilot studies may be awarded a maximum of $50,000. The award period may be up to three years.
Submission deadline: 8th June 2022
Website: https://www.povertyactionlab.org/initiative/worker-prosperity-initiative-request-proposals

Agency: Department of Biotechnology (DBT)
Scheme: Proposals invited for: Biotechnological interventions for mitigating microplastic pollution and development of alternatives to single use plastic
Focus areas: Microplastic management and mitigation; Alternatives to single-use plastics
Team structure: Academic researchers can apply, either individually or in consortium mode. Industry participation is not mandatory, however, the proposals having industrial contribution can be considered.
Budget provisions: Equipment, personnel, outsourcing, domestic travel, consumables, contingencies, other costs, institutional overheads
Deadline: 5th May 2022
Weblink: https://dbtindia.gov.in/sites/default/files/Call_for_proposals_Plastics_2022.pdf
Application process: via DBT eProMis portal

Agency: Department of Biotechnology (DBT)
Scheme: Call for Letters of Intent (LOI) in Neuroscience
Scheme remit: To support interdisciplinary efforts that advance Neuroscience Research and Education; Letters of intent (LoI) are invited in the basic science and translational research aspects that advance our understanding of both normal and abnormal brain functioning
Deadline: 10th May 2022
Weblink: https://dbtindia.gov.in/sites/default/files/Call%20for%20Letters%20of%20Intent%20%28LOI%29%20in%20Neuroscience_0.pdf
Application process: Via email to yadav.ak@dbt.nic.in; format provided on website

Agency: Department of Biotechnology (DBT)
Scheme: Proposals invited for: Sustainable Aviation Fuels
Scheme remit: To support Research & Innovations to produce at scale, widely affordable, advanced biofuels for aviation applications.
Team structure: Academic researchers can apply, either individually or in consortium mode. Industry participation is not mandatory, however, the proposals having industrial contribution can be considered.
Budget provisions: Equipment, personnel, outsourcing, domestic travel, consumables, contingencies, other costs, institutional overheads
Deadline: 5th June 2022
Weblink: https://dbtindia.gov.in/sites/default/files/Call%20for%20Proposal%20on%20sustainable%20aviation%20fuel_0.pdf
Application process: via DBT eProMis portal

Funding compendium

RESEARCH GRANTS, FELLOWSHIPS AND PRIZES

Agency: International Development Research Centre (IDRC)
Scheme: Call for Concept Notes: Climate Adaptation and Resilience (CLARE)
Scheme remit: To support research to enable socially inclusive and sustainable action to build resilience to climate change and natural hazards across Africa and Asia-Pacific.
Research focus:

1. Understanding climate risk: Research to improve our understanding of the risks associated with climate and natural hazards, by addressing gaps in the underpinning science.
2. Risk-informed early action: Research to improve risk-informed anticipatory action to reduce humanitarian and extreme impacts of weather, climate variability and the compounding and cascading interaction of natural hazards.
3. Developing in a changing climate: Research to inform development in a changing climate; action that builds resilience in the present climate and adapts to future climate.

Team structure: This funding opportunity is open to transdisciplinary research teams working in eligible countries, including India. Further details on website.
Budget provisions: Equipment, personnel, outsourcing, domestic travel, consumables, contingencies, other costs, institutional overheads
Deadline: 7th June 2022
Weblink: https://www.idrc.ca/en/funding/call-concept-notes-climate-adaptation-and-resilience-clare

Agency: Spencer Foundation
Scheme: Research Grants on Education- Large
Budget provisions: Between $125,000 and $500,000, including up to 15% overheads. Cost categories include salaries, collaborators, travel, equipment, project expenses, subcontracting costs, others and 15% institutional overheads.
Duration: 1-5 years
Deadline: Intent to apply stage- 4 May 2022; full application deadline 15 June 2022
Weblink: https://www.spencer.org/grant_types/large-research-grant
Application process: Two-stage application process starting with an online "intent-to-apply" followed by a full proposal, applications accepted twice a year.

Agency: EMBO
Scheme: Scientific Exchange grants
Scheme Remit: To support research exchanges of up to three months between laboratories in eligible countries. The grants facilitate collaborations with research groups with expertise techniques or infrastructure that is unavailable in the applicant's laboratory. All projects must have a biological significance and should aim to increase our knowledge on a particular biological process.
Budget provisions: Travel costs and subsistence costs at 68 euros per day for applicants from India travelling to eligible countries (details included in scheme guidelines)
Duration: 1 week to 3 months
Deadline: Rolling call
Weblink: **https://www.embo.org/funding/fellowships-grants-and-career-support/scientific-exchange-grants/**
Application process: via the EMBO online application system

Funding compendium

RESEARCH GRANTS, FELLOWSHIPS AND PRIZES

Agency: Science and Engineering Research Board (SERB)

Science and Engineering Research Board (SERB)
Department of Science and Technology (DST)

Schedule: Call for proposals – 2022

	Programs/Schemes	Call opening date	Call closing date
1.	Start-up Research Grant (SERB-SRG)	01-02-2022 (Tuesday)	01-03-2022 (Tuesday)
2.	Core Research Grant (SERB-CRG)	01-02-2022 (Tuesday)	18-04-2022 (Monday)
3.	Teachers Associateship for Research Excellence (SERB-TARE)	10-02-2022 (Thursday)	15-03-2022 (Tuesday)
4.	SERB-MATRICS	23-02-2022 (Wednesday)	22-03-2022 (Tuesday)
5.	Scientific and Useful Profound Research Advancement (SERB-SUPRA)	11-04-2022 (Monday)	10-05-2022 (Tuesday)
6.	National Postdoctoral Fellowship (SERB-NPDF)	02-05-2022 (Monday)	01-06-2022 (Wednesday)
7.	Empowerment and Equity Opportunities for Excellence in Science (SERB-EMEQ)	01-06-2022 (Wednesday)	30-06-2022 (Thursday)
8.	Science and Technology Award for Research (SERB-STAR)	15-06-2022 (Wednesday)	28-07-2022 (Thursday)
9.	Technology Translation Award (SERB-TETRA)	04-07-2022 (Monday)	03-08-2022 (Wednesday)
10.	SERB International Research Experience (SERB-SIRE)	01.08.2022 (Monday)	30.08.2022 (Tuesday)
11.	Promoting Opportunities for Women in Exploratory Research (SERB-POWER)	01-09-2022 (Thursday)	30-09-2022 (Friday)

Plagiarism check notification: All the PIs are advised to check the proposal with an anti-plagiarism software and submit scientific ethics and plagiarism undertaking certificate in the prescribed format. All recommended proposals would be subjected to plagiarism check and with due follow-up, in case of conflicts.

Funding compendium

FUNDING FOR INTERNATIONAL EXCHANGE AND COLLABORATIONS

Agency: European Molecular Biology Organization (EMBO)
Scheme: EMBO Global Investigator Network
Scheme Remit: To support young group leaders in Chile, India, Singapore and Taiwan. The aim of this programme is both to support collaborations with European scientists but also to foster local
exchanges and thus help create EMBO communities outside Europe.
Applicant eligibility: Applicants must have been group leaders of a laboratory for at least one year and for less than six years on 1 January in the year of the application; further details on website.
Membership benefits: The programme selects 8-10 new investigators annually and provides support and networking opportunities during a critical stage of their career. Selected researchers have full benefit of all activities for four years and will be referred to as current programme members during this period. After these four years, they will be referred to as former programme members but will
remain associated with the network and have access to some of its benefits.
Budget provisions: Global Investigators receive extensive support for networking interactions and other career development opportunities. Up to €7,000 (seven thousand euros) are provided annually for the Global Investigator to perform any of these activities: Meeting participation, meeting organization, Regional meetings, lab retreats, scientific visits to other laboratories.
Deadline: 1 June 2022
Weblink: https://www.embo.org/funding/fellowships-grants-and-career-support/global-investigator-network/
Application process: Via EMBO online application system
More about EMBO Funding opportunities for India, via IndiaBioscience at https://indiabioscience.org/international-grants-and-fellowships/embo-glance

Agency: Indo-French Centre for Promotion of Advanced Research (IFCPAR/CEFIPRA)
Scheme: Collaborative Research Programme
Agency Remit: Support for Indo-French Science, Technology & Innovation (ST&I) system through various activities
Scheme Remit: Support for research groups through high quality collaborative research projects in advanced areas of basic and applied science to nurture scientific competency in India and France
Research areas supported: 1) Pure and Applied Mathematics, 2) Computational sciences, 3) Life & health sciences, 4) Pure and Applied Physics, 5) Pure and Applied Chemistry, 6) Earth & Planetary Science, 7) Materials Science, 8) Environmental Sciences, 9) Biotechnology and 10) Water
Applicant eligibility: Proposal to be jointly submitted by one Principal Collaborator from India and one Principal Collaborator from France, Indian PI to have permanent position in University
Budget provisions: Maximum of 200,000 Euros for both sides together, covering Manpower (JRF/SRF/RA/Master students for Indian Partners), Recurring Expenses including consumables, domestic travel & miscellaneous expenses/contingencies, International Travel and Equipment : Minor equipment and accessories which are essential for the project with a limit of max. of 10% of total approved budget of the project only on Indian side
Duration: 3 years
Deadline: 15th July 2022
Weblink: http://www.cefipra.org/Collaborative_Research.aspx
Application process: Submissions via CEFIPRA online portal

Agency: International Centre for Genetic Engineering and Biotechnology (ICGEB)
Scheme: Collaborative Research Program
Research focus: Basic science, human healthcare, industrial and agricultural biotechnology and bioenergy
Team structure: Active collaboration with ICGEB Research Groups is welcome, but is not mandatory, other international collaborations are encouraged
Budget provisions: Up to 25000 Euros per year, supporting direct costs including major budget categories: Equipment, Consumables, Training, Travel and Literature
Duration: 3 years
Deadline: 30th April 2022
Weblink: https://www.icgeb.org/activities/grants/
Application process: Online via portal
Country processes: Each country may endorse a maximum of three (3) project proposals for standard research grant applications, plus two (2) additional Early Career Return Grant applications. The Liaison officer for India is Dr Kalaivani Ganesan, DBT (k.ganesan@nic.in).
Funded grant information: https://www.icgeb.org/activities/grants/research-grants-impact-2/

Funding compendium

FUNDING FOR ACADEMIA-INDUSTRY COLLABORATIONS

A**gency: Department of Science and Technology, in collaboration with Innovation Fund Denmark (IFD)**
Scheme: Indo-Danish research and innovation cooperation in the area of "Green fuels including green hydrogen".
Research focus: Green fuels for transport and industry (Power-to-X, etc.). Solutions to convert electricity from renewable energy into products that can be used to reduce emissions from parts of the transport and industrial sectors where there are no cost-effective alternatives to fossil energy.
Team structure: Project proposal must include the name of one Principal Investigator (PI) each in India and Denmark. On the Indian side it is advised to include one Co-PI in the proposal. It is mandatory to include an industry partner in these proposals. The applications must include a statement on how the proposed collaboration brings added valued for both countries. Participation of relevant public partners and/or private enterprises other than the main applicants is encouraged.
Commercialization: Projects leading to the development of a device/prototype/process with Technology Readiness Levels (TRL) 5 and above and having potential for commercialization will be eligible for financial support. Basic R&D proposals leading to only research publications will not be supported under this call. The implementation or commercialization plan should be clearly spelled out with achievable milestones, timelines, justifiable budget requirement and engagement with prospective technology transfer partners or technology transfer facilitating bodies.
Duration: Up to 3 years
Deadline: 2 June 2022
Weblink: https://dst.gov.in/callforproposals/joint-call-project-proposals-2022-indo-danish-research-and-innovation-cooperation
Application process: Online, via DST portal on Indian side and through portal on Danish side

Agency: Global Innovation and Technology Alliance (GITA)
Scheme: India-Israel Joint Call
Scheme remit: To promote facilitate and support joint Industrial R&D projects between companies from India and Israel, which would lead to successful commercialization and benefit for both countries.
Thematic focus:

- Agriculture
- Energy
- Healthcare
- Information & Communication Technologies (ICT)
- Water

Team structure: The Indian Project Lead (IPL) (i.e. lead company) must be a commercial (for profit) company under the Indian Companies Act 1956/2013, which operates in and is headquartered in India.

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The Indian Project Lead must be a commercial company under the Indian Companies Act 1956/2013, which operates in and is headquartered in India. Other Industry Partners or Academic/R&D Institutions can be brought in as co-investigators. The Israeli Project Lead applicants must be a for-profit Israeli R&D Company.
Budget provisions: Labour, equipment, project management, materials and consumables, sub-contracts, travel and subsistence, joint commercialization, institutional overheads
Deadline: 16 June 2022
Weblink: https://gita.org.in/OnlineRfp/ProgramInfo.aspx?GITA=kZdo4yRVS4gRExygXA1Gyq9SZnneO25N65fp3J3Sel8=Application process: Application package available on website

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All requests for research funding from internal and external sources should be sent to the University Research Board for approval, via the Grants Portal.

Details of intramural funding available via Ahmedabad University are available in the University Research Board Policy Document. This includes Start-up grants, Seed grants, University Challenge grants, Teaching Material Development/Innovation grants and Conference Travel support.

Previous editions of the Research Horizons Newsletter and Funding compendium are archived on AURIS. These editions include details of schemes with rolling calls and additional schemes with past, ongoing or anticipated deadlines. For suggestions on the Funding compendium, please contact the Dean of Graduate School and Research at urb@ahduni.edu.in.