

# RISE

*Catalysing Global Research Excellence*

## *Robotics Technology:* Driving Innovation, Transforming Future

**ReNeU's 1<sup>st</sup>  
Anniversary**  
Galvanising Research Excellence

**UiTM's Global Effort  
in Training Young Aspiring  
Neuroscientists**



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# RISE

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## ABOUT THE MAGAZINE

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RISE Magazine is published by Office of the Deputy Vice-Chancellor (Research & Innovation) with the aim of highlighting the research and innovation on of experts from multidisciplinary fields in UiTM. It serves as a platform for researcher to showcase their high quality and impactful findings, activities and innovative solution through publication. Contribution of these ideas come from academicians, researchers, graduates and universities professionals who will enhance the visibility of research and strive to elevate Universiti Teknologi MARA to global standards. This is an effort to promote research as a culture that should be embraced by everyone.

## ABOUT UiTM

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Universiti Teknologi MARA (UiTM) is a public university based primarily in Shah Alam, Malaysia. It has grown into the largest institution of higher education in Malaysia as measured by physical infrastructure, faculty and staff, and student enrollment. UiTM is the largest public university in Malaysia with numerous campuses throughout all 13 states in Malaysia. There is a mixture of research, coursework and programmes offered to the students. Office of the Deputy Vice-Chancellor (Research & Innovation) or known as TNCPI (*Timbalan Naib Canselor (Penyelidikan & Inovasi)*) serves a *Pusat Tanggungjawab (PTJ)* that navigates the research and innovation of university in achieving UiTM agenda. TNCPI office strives to mobilise the faculties, and campuses to move together and promotes cooperation among researchers in bringin UiTM as a leading global university of science, technology, and innovation by 2025.



# EDITORIAL TEAM

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# FOREWORD

## VICE-CHANCELLOR



To excel globally, research must be weighed in as a key factor to navigate the university's direction in making an impact. This is especially when focusing on translational research where society can benefit greatly from its findings.

Congratulations to the Office of the Deputy Vice-Chancellor (Research and Innovation) on the publication of this magazine, aptly called RISE. I am pleased to see that the COVID-19 pandemic has not dampened UiTM researchers' pursuit of their dreams. The contents of these pages allow active research and innovation activities be shared with our stakeholders, local and international collaborators.

As UiTM aspires to be a world-renowned university by 2025, I believe that our current research practises are on track. For example, the featured article in the magazine highlights the key success of robotic technology ventured by our researcher, Associate Professor Dr Hanafiah Yussof, who formed a start-up company to advance robotic technology in Malaysia. His contribution to the robotics industry, the Robot Rehabilitation System for Autism Therapy, is an example of innovation that can transform the future.

In our pursuit of changing the future, we at UiTM are cognisant of the current and future direction of research to facilitate research from different disciplines. We have researchers using drones for pineapple plantations, exploring hybrid rockets with Equatorial Space System (ESS), and researching sanitation, collection, and sewage/wastewater treatment systems with Indah Water Konsortium (IWK) Sdn Bhd, to name a few of the work we have been actively involved in.

Hence, we will continue to contribute and make progress associated with processes and knowledge pivotal for impactful research, especially in developing knowledge-based technology that benefit society.

Ultimately, I am confident that the publication of this magazine will further strengthen the visibility of UiTM research and innovation.

Thank you.

**PROFESSOR Ts. DR HAJAH ROZIAH MOHD JANOR**

Vice-Chancellor

Universiti Teknologi MARA

# FOREWORD

DEPUTY VICE-CHANCELLOR (RESEARCH & INNOVATION)



I would like to congratulate the editorial team on the release of RISE, a research magazine highlighting our research and innovation efforts and accomplishments. The magazine exemplifies our office's synergistic and collaborative efforts, as well as those of our researchers and article contributors, to advance the visibility agenda.

As the office in charge of research and innovation, we are constantly hoping that every research result and invention will benefit the community through translational research. Assoc. Prof. Dr Hanafiah Yussof's Robot Rehabilitation System for Autism Therapy, for example, has aided the autism community in improving communication. Even more proud that this endeavour resulted in the formation of a start-up company.

Despite the COVID-19 pandemic, UiTM researchers continued to conduct relevant research activities despite the uncertainty. The scale of the events varies from a small effort to install solar panels at a rural school and organise virtual conferences to the use of drones and precision agriculture technology on pineapple plantations. Notably, a Bioextreem solution capable of inhibiting 99.99 percent of bacteria and viruses was also developed.

With these accomplishments, we will continue to support research efforts, particularly those aimed at developing knowledge-based technology with a social benefit in mind.

Finally, I believe that this magazine can serve as a platform for the visibility agenda by incorporating a wide range of science and research perspective, fostering more potential collaboration between UiTM researchers and local and international institutions and industries.

Thank you.

**PROFESSOR Ts. DR MOHD NAZIP SURATMAN**

Deputy Vice-Chancellor (Research & Innovation)

Universiti Teknologi MARA

# MESSAGE

## FROM THE CHIEF EDITOR



Alhamdulillah.

It gives me great pleasure to see this issue published. We received a massive and impactful submission to feature our UiTM community's research stories. Despite the difficult circumstances, UiTM researchers are proactive in carrying out research activities and events within their respective capacities.

Allow me to express my heartfelt gratitude to all of the authors of the articles in this magazine. The publication of this issue would have been far more difficult to achieve without their contributions. Here, we feature Assoc. Prof. Dr Hanafiah Yussof of the College of Engineering's beautiful journey into robotic technology. I believe that robotics has always been on the national agenda for its true mission in helping people. We chose to focus on robotics to honour a UiTM researcher who has dedicated his academic

career to assisting society through technological advancements. To all researchers out there, we hope that his inspiring journey will rekindle our enthusiasm for research.

The inaugural issue of the RISE magazine also features research achievements and the multidisciplinary research areas in UiTM which support national priorities. Research Nexus UiTM (ReNeU) celebrates its first anniversary in 2021, marking a major milestone in its journey. Faculty of Pharmacy is making a global impact towards producing young aspiring neuroscientists. The exploration of Lembah Benua has highlighted the wonderful forest as a potential research station. The potential of fine art logistic industry is also of utmost importance towards making Malaysia as a top art market hub. These are some of the exciting research stories and I invite you to discover more in this issue.

We sincerely hope to bring you more research news from the UiTM family in the coming issues. Have fun reading!

### **DR MOHD MUZAMIR MAHAT**

Head of Research Communication & Visibility Unit (UKPV)  
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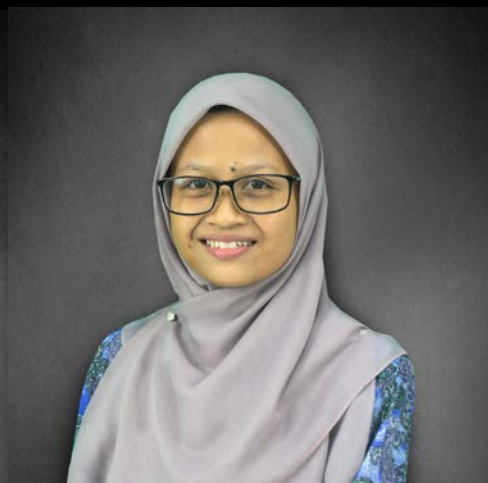
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# CONTENTS

NOVEMBER 2021

## FEATURE STORIES

Robotics Technology: Driving Innovation, Transforming Future	1
Hutan Simpan Lembah Benua Exploration 2021	7
Drone and Precision Agriculture Technology for Pineapple Plantation	9
A Project to Provide Solar-Powered Lighting Project to Rural Schools in Perak	10
Virtual Green Safe Cities Seminar (GRESA 2021)	12
Ads – UNNIZOL Hand Sanitizer	13
Good Bacteria That Lower Cholesterol: Myth or Truth?	15
MatE2U: Community Outreach by the Maternofetal and Embryo Research Group (MatE)	16
Nextgreen Global- UiTM Research Collaboration	17
IWK-UiTM Research Collaboration	18
Gait Recognition System for Mass Surveillance	19
Achievements	21
NANO-ElecTronic (NET) Research Group	22
Addressing Public Health Concerns Through University-industry Collaboration	24
Adaptive Strategies for Microbial Performance Through Optimization Approach	25
The Effectiveness of the ICQS Bukit Kayu Hitam and CIQ Sadao's 24-hour Operation	26
Green Event Research @ Borneo Jazz Festival	27
Ads – Dr Azri's Perfume	29

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Collaboration between NEXTGREEN Global and UiTM will strengthen UiTM cooperation with public listed company in zero waste technology and renewable energy for sustainable development



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17

Nextgreen Global- UiTM Research Collaboration

38

UiTM'S Global Effort in Training Young Aspiring Neuroscientists





# 42

High Energy Material Research Laboratory (HEMREL)



ReNeU's 1 <sup>st</sup> Anniversary – Galvanising Research Excellence	31
Potential of Fine Art Logistic Industry	33
Erasmus+ KA2: The Complexities of the Creation of a Validation Protocol for the Making4.0 Curriculum Between the Malaysian and European Education Systems	35
Clove, Habbatus Sauda, Neem and COVID-19	36
UiTM's Global Effort in Training Young Aspiring Neuroscientists	38
Ads - Paina (Pineapple Chili Sauce)	40
High Energy Material Research Laboratory (HEMREL)	42
Disruptions in Supply Chains and a Lesson from the COVID-19 Pandemic: A Retail Perspective	43
New Road-Side Speed Display Signs in Reducing Speeding Problem in Malaysia	45
The Data is Talking to You. Are You Listening?	46
Ads - UnaCoffee	48
Ads – RM Polypack Sdn Bhd	49



# 07

Hutan Simpan Lembah Benum Exploration 2021



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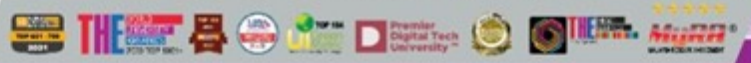
Faculty of Medicine  
Institute of Pathology, Laboratory & Forensic Medicine (I-PPerForM)  
and the Malaysian FH research team

on the successful publication in the flagship journal

**THE LANCET**

(Impact Factor: 79.321)

**Global perspective of familial hypercholesterolaemia: a cross-sectional study from the EAS Familial Hypercholesterolaemia Studies Collaboration (FHSC)**



## Achievements

# Congratulations

**Professor Dr Wong Tin Wui**

Faculty of Pharmacy &  
Smart Manufacturing Research Institute (SMRI)

Recipient of

**2021 TOP RESEARCH  
SCIENTISTS MALAYSIA (TRSM)**

(Precision Medicine: Precision Nanomedicine  
Design for Cancer and Diabetes)

from  
Deputy Vice-Chancellor (Research & Innovation)



# Congratulations

**Professor Dr Wong Tin Wui**

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(IPROMISE)

Listed in the

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\*Source: PLoS Biol 18(10): e3000918. <https://doi.org/10.1371/journal.pbio.3000918>

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Dr Azri's Perfume



drazrisperfume



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# UiTM Research Strength Supporting National Priorities



<b>Industrial Technology</b>	01	Advanced Materials	<b>Cyber Technology</b>	01	Space & Satellite	<b>Health &amp; Wellness</b>	01	Preventive healthcare
	02	Smart Manufacturing		02	Big Data & Data Analytics		02	Sick Care
	03	Plant and Process		03	Cyber Security		03	Rehabilitative Care
	04	Construction & Infrastructure		04	Robotics & AI		04	Genomics
		05		Smart Sensors	05		Non-Communicable Disease	
<b>Logistics and Transportation</b>	01	Transportation	<b>Energy &amp; Environment</b>	01	Water Security		<b>Social Creativity &amp; Innovation</b>	01
	02	Logistics & Halal-hub		02	Renewable Energy	02		Islamic Finance Fintech
	03	EV-AV,		03	Environment & Climate Change	03		Socio Innovation
	04	UAV, Aviation		04	Solar Technology	04		B40-Talent
		05		Biodiversity	05	Entrepreneurship & Artrepreneur		
		06		Food Security	06	Socio-Economic		

Area      Sub-Area



# ReNeU's 1<sup>st</sup> Anniversary – Galvanising Research Excellence

by Prof. Dr Nooritawati Md Tahir



It's ReNeU's 1<sup>st</sup> birthday! 16<sup>th</sup> June 2021 marked the one-year establishment of Research Nexus UiTM (ReNeU). We look back to see how we evolved alongside the needs of the research community. ReNeU is ventured by Prof. Dr Nooritawati Md Tahir as the Director with six Deputy Directors specialising in six priority niche areas outlined in UiTM 2025 Strategic Planning. The six niche areas are Industrial Technology, Cyber Technology, Health & Wellness, Logistics & Transportation, Energy & Environment, and Social Creativity & Innovation. ReNeU is responsible for managing and ensuring the implementation of the research and development agenda runs smoothly, especially in strengthening UiTM's research ecosystem, collaboration, and transformation of research impact beyond academia, procurement of grants, publishing in high-impact journals through collaboration with industry partners and international collaborators, as well as transforming UiTM into a globally renowned university. ReNeU also serves as a platform for bridging research entities towards research excellence and leading the research partnership through strategic and sustainable networking locally and internationally. As we know, the university aspires to focus more on trans-disciplinary research that could enhance the well-being and socio-economy of the community, in line with the Sustainable Development Goals (SDGs).

So many things have happened in this one year. The world has changed tremendously due to COVID-19, which has had a massive impact on the economy, education, and the research and innovation ecosystem. Leading the university's research & development activities in this new norm era is indeed challenging. With this pandemic, the whole world has no choice but to revert to ICT and digitalisation to continue networking, collaborating, and stay connected. Hence, ReNeU has taken the opportunity to start the webinar series programme in early April 2020 when the pandemic situation hit the country. UiTM prolific researchers, Centre of Excellence (CoE) Directors, Heads of Research Groups (RGs), and Research Interest Groups (RIGs) were invited to conduct motivational and sharing sessions related to their research expertise and research areas of expertise. A number of first-time high-impact journal writing sessions were also held.

These webinar sessions, held via the online platform, Facebook and YouTube, have received tremendous responses from UiTM and non-UiTM researchers. In addition, several town hall sessions were also held to convey the latest information, discuss, and provide the opportunity for UiTM researchers to voice their opinions and suggestions to strengthen the university's research agenda further. Numerous online grant application briefing sessions were also conducted to ensure our researchers stayed tuned in and updated with the latest grant applications during these trying times. Speakers included UiTM professors, the grant providers, and several sessions were also conducted by ReNeU administrators.





## Cyber Technology

For the first time, the International Conference on Science and Social Research (CSSR) was held virtually on December 9-10, 2020, with the theme 'Translational Research Impacts on Sustainable Development Goals (SDGs)'. CSSR 2020 was jointly organised with Universitas Negeri Semarang (UNNES), Indonesia, as part of our global research collaboration initiatives. The virtual keynote sessions were delivered by three prominent speakers, namely Professor Emeritus Dato' Dr Abdul Latiff Mohamad from the Langkawi Research Centre, Professor Dr Kirsten Holmes from Curtin University, Perth, Australia, and Professor Dato' Dr Mohd Tajuddin Abdullah from the Institute of Tropical Biodiversity and Sustainable Development, Universiti Malaysia Terengganu (UMT), followed by the virtual parallel sessions presentations.

ReNeU  
NEXUS UITM



For the last year, 11 Memorandum of Understanding (MOUs) were sealed with international universities and industries that include Coventry University, United Kingdom, Rochester Institute of Technology (RIT), U.S.A., Universiti Semarang Indonesia (UNNES), Nextgreen Global Sdn. Bhd., Malaysian Nuclear Agency, Ministry of Science, Technology, And Innovation (MOSTI), Rougeart Sdn. Bhd., Pintas Utama Sdn. Bhd., Glotree Incorporated, Planet Mahir Sdn. Bhd., Watec Sdn. Bhd. and Bio Fluid Sdn. Bhd. The purposes of cooperation include jointly applying for international grants, co-authorship in high-impact publications, matching grants by both parties, industry grants awarded by industry partners, and conducting research, development, and innovation (R & D & I) activities agreed upon in the MoUs.



## Industrial Technology

In sharing her experience leading ReNeU, Dr Nooritawati said people would move mountains for you if they knew that you genuinely cared about them and not just about results. Leadership is not about the leader, but rather those being led. Take an interest in their career aspirations and value their opinions. On that note, on behalf of ReNeU, Dr Nooritawati would like to thank all the researchers, industry partners, and collaborators for being a part of this journey!

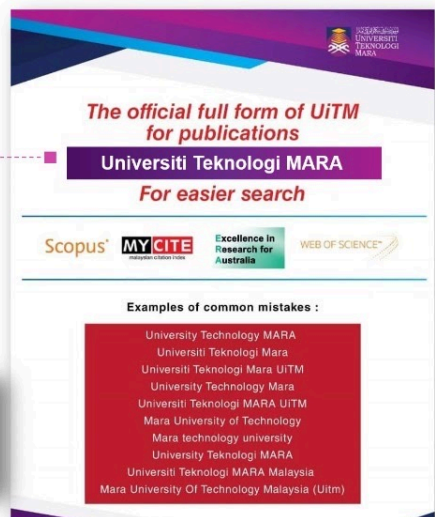




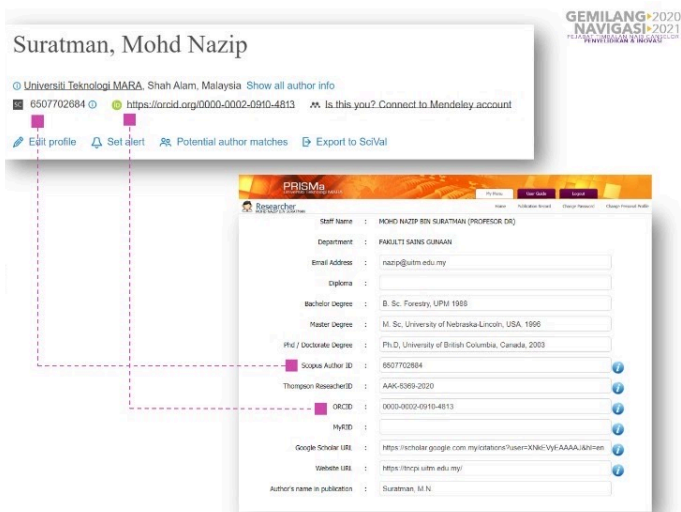
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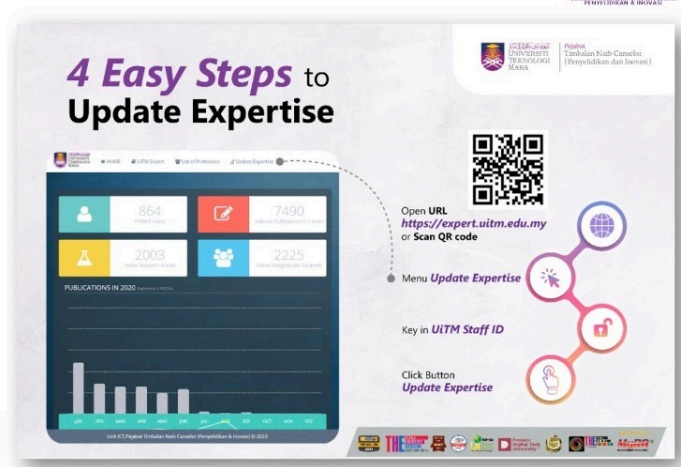
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*A Project to Provide Solar-powered Lighting to Rural Schools in Perak*

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*Virtual Greensafe Cities Seminar (GRESA 2021)*

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*MatE2U: Community Outreach by the Maternofoetal and Embryo  
Research Group (MatE)*

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**Dr Nurdiana Samsulrizal**

Research Nexus UiTM, ReNeU (Health & Wellness)

Faculty of Applied Sciences, UiTM Shah Alam

***Addressing Public Health Concerns Through University-Industry  
Collaboration***

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Faculty of Applied Sciences, UiTM Shah Alam

***Adaptive Strategies for Microbial Performance Through  
Optimization Approach***

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**Assoc. Prof. Dr Mohd Rizaimy Shaharudin**

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***Green Event Research @Borneo Jazz Festival***

**Prof. Dr Nooritawati Md Tahir**

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***ReNeU's 1<sup>st</sup> Anniversary– Galvanising Research Excellence***

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Research Nexus UiTM, ReNeU (Logistic & Transportation)

Faculty of Art & Design, UiTM Shah Alam

***Potential of Fine Art Logistic Industry***

**Prof. Dr Shahrیمان Zainal Abidin**

Research Nexus UiTM, ReNeU (Logistic & Transportation)

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Faculty of Applied Sciences, UiTM Shah Alam

Faculty of Pharmacy, UiTM Campus Puncak Alam

***Clove, Habbatus Sauda, Neem and COVID 19***

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*The Data is Talking to You. Are You Listening?*



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