Scientific Insights
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Cover Story
The National Innovation Strategy

Article
Addiction to Social Networking Sites

Funded by TRC
Research Team Develops Electronic Facial Recognition System

News Reports
Omani Frankincense at the Falling Walls Conference in Berlin
Today, striving towards creativity and innovation has become a main priority for many cultures all over the world. This trend is no longer restricted to specific countries, groups or institutions and has now become a culture that is globally accepted and constantly expanding. We regularly hear about a new, unique innovation that can benefit our lives and contribute to the advancement of humanity as a whole. These advancements are effecting more people than ever, as the world is becoming more of a small village.

Interest in innovation has increased within Oman in recent years, which has culminated in the issuance of the National Innovation Strategy in the first quarter of this year. This will act as a road map for everyone striving towards the industry of innovation and the transition from traditional thinking in regards to goods and services, to a creative and knowledge based economy.

There are several individual and societal initiatives adopted by TRC, that have contributed to the spread of the culture of innovation, such as the ‘Individual Innovation Competition’, where TRC supports a number of innovative projects, some of which are on the way to market soon. ‘Upgrade’ is another initiative that will help with the transfer of innovation- based graduation projects in the Information and Communications Technology (ICT) sector into start-ups, in collaboration with a number of partners in the public and private sectors.

TRC’s initiatives also include organizing the Falling Walls Lab Competition, which aims to present participant’s ideas to an evaluation jury to select the best project that represents the Sultanate internationally.

TRC also established the Oman Chamber of Commerce and Industry Innovation Award in collaboration with the Oman Chamber of Commerce and Industry. The competition received a great response and created an enabling environment for innovators.

We are confident that innovation is the way forward and will allow us to experience remarkable transitions in all aspects of life. Innovators only need to seize the existing opportunities.
Graduation Projects Shortlisted for the Second Stage of ‘Upgrade’

The program of transforming graduation projects to start-ups in the Information and Communication Technology (ICT) sector ‘Upgrade’, supervised by TRC, shortlisted 38 projects from the received 62, for the second stage.

The evaluation criteria for the second stage of the program included the clarity and uniqueness of the idea, technical feasibility, the competitive advantage of the idea, its marketing strategy, the team formation and their startup operation and finance model.

Oman-German Cooperation on Sustainable Energy Concepts

In order to coordinate work on the project of ‘Continuous Hybrid Cooling Using Geothermal and Solar Heat Sources and Underground Storage Systems’ which is run by The Institute of Advanced Technology Integration (IATI) of TRC, in collaboration with Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences, IATI and Helmholtz Association organized a workshop, titled ‘Oman-German Cooperation on Sustainable Energy Concepts’.

The workshop provided an opportunity for representatives from fields of politics, industry, research, and education in Oman and Germany, to exchange information about options of deployment for environmental friendly energy solutions. It also aimed to highlight the economic and technological importance of applied research and training. The workshop was a chance for Industry to present their performance potential and their requirements for future research and education.

Oman Frankincense Project Represented in the Finals in The Falling Walls Competition in Berlin

For his project titled ‘Omani Frankincense and its Role in the Manufacturing of Varnish and Dyes’, Salim Abdullah Al Kabi will represent the Sultanate in the Falling Walls Conference that will take place in Berlin on November 9, 2017.

Salim’s project qualified for Berlin after competing against 20 other projects in the final stage of the Falling Walls Lab Oman Competition in its second year. Khadija Al Zadjaliya, for her project titled ‘High Ambient Temperature by A Jacket’ and Basma Al Kiyoomiya for her project titled ‘Organic Compounds from Water’ were also awarded as winners of the second place and third place of the competition respectively.
TRC and OCCI Conclude the First Phase of the Oman Chamber of Commerce & Industry Innovation Award with 460 proposals submitted.

TRC and Oman Chamber of Commerce and Industry concluded the first evaluation phase of the Oman Chamber of Commerce & Industry Innovation Award. A total of 460 projects were submitted to the different centers of the award. Thirty five projects (five from each center) met the award’s criteria and qualified for the second phase from all the centers. Two projects from each of the seven centers will qualify (14 projects) for the third phase, where eventually three projects will be awarded as the top winners next October.

Omani Student Presents Research Paper at Postgraduates Conference for Educational Research Conference

Issa Salim Al Shabibi, a PhD student at Cardiff University, presented a research paper at the Postgraduates Conference for Educational Research Conference at Oxford University on the understanding of entrepreneurship as a strategy for enabling the skills of higher education students to contribute to economic diversification in the Sultanate.

The research paper addressed the higher education sector in the Sultanate, and discussed the nature of the Sultanate’s economy and its position on the world’s map of economies. It also discussed the similarities and differences between Oman and the other economies in the other GCC countries.

Issa recommended the reduction of the dependency on energy as main source of economy and recommended the adoption of entrepreneurship syllabus in the higher education syllabus of Oman.

Statistics of the Falling Walls Lab Oman Competition

86 Projects Applied 20 Made it to the Finals 3 Winners Awarded 1 To Represent the Sultanate in Berlin
Many experts believe that innovation will be the future after oil and that the race towards advancement and progress must pass through innovation. The transition from the traditional mentality of the provision of services, goods and products, to a more creative and innovative approach has become a matter of survival. In this regard, more than 70 Omani experts and specialists representing various governmental, private, academic and civil institutions have been actively involved in the development of a national innovation strategy project since May 2015. The project underwent numerous intensive workshops and interaction among the various work teams, the Supervisory Committee and the Supreme Steering Committee of the project. In this edition, we will shed light on the National Innovation Strategy (NIS) and its prominent features.
Main Pillars of the Strategy that Define the Features of the Innovation System

His Highness Sayyid Dr. Fahad bin Aljulanda Al-Said, Assistant Secretary General for Innovation Development at The Research Council (TRC) and Chairman of the Supervisory Committee of the NIS preparation project, stated that the NIS project is the one of the main initiatives adopted by TRC. Through the formation of work teams composed of specialists from the relevant stakeholders in the Sultanate, the aim of the NIS is to come up with a unified and comprehensive national vision. Dr Fahad explains, “Representatives from the various concerned institutions were involved in the preparation of the strategy and everyone in the Sultanate is responsible for its implementation. The NIS is a national strategy for Oman as a whole, and cannot be fully implemented unless everyone in Oman is convinced of its importance. Integration of efforts and cooperation is vital in order for the Sultanate to be among the most innovative countries worldwide. We have all the factors for achieving this ambitious vision, if we all share the responsibility for the sustainable development of Oman.”

Dr. Sharifa bint Hamoud Al Harthiya:
“Various concerned institutions were involved in the preparation of the strategy and everyone is responsible for its implementation”

Oman To Be Among the Top 20 Most Innovative Countries in the World by 2040

Speaking about the methodology used for the preparation of the strategy, Dr. Sharifa bint Hamoud Al Harthiya, Director of the NIS Preparation Project, said that the NIS preparation teams depended on the methodology driven by the current challenges and the future foresight methodology driven by the dynamic changes. The vision of the strategy focuses on achieving a national innovation-driven economy that can place Oman among the top 20 leading countries for innovation in the world by 2040. NIS aims at the establishment of an innovation enabling environment, diversification of the national income sources, creation of renewable job opportunities and enhancement of the standard of living of citizens.
Dr. Sharifa explained that the NIS preparation teams studied and analyzed the challenges listed in the Science, Technology and Innovation Policies (STIP) Review, carried out by TRC, in collaboration with the United Nations Conference on Trade and Development (UNCTAD). They also analyzed the Sultanate’s 2020 Vision and the views of the experts involved in the preparation of the NIS, through which they finally approved the four main pillars.

Phases of the NIS

Each of the NIS activation phases includes a number of initiatives. Under the ‘Cropping Close Fruits’ phase, there are a number of initiatives, including the expansion of the broadband network to enable effective internet access to reach all the governorates of the Sultanate, as well as the enhancement of science and technology transfer programs and projects in the areas that are of national priority through the development of the general procurements policies of the country for mega projects.

With regard to the ‘Empowerment’ phase, there were diverse and comprehensive initiatives, such as the development of curricula in school education is tailored towards experimentation and exploration of development of science, mathematics and reading skills, and for the establishment of innovation support centres throughout the Sultanate, in order to provide the appropriate support and training in innovation and entrepreneurship. In the third phase, ‘Comprehensive System’ phase, all policies will compliment and integrate into each other forming an effective national system for sustainable development.
Necessity for the Harmonization of Innovation Policies

Dr. Sharifa Al Harthiya stressed that the effective national innovation system, in accordance with the international standards, requires the harmonization and integration of the following innovation policies: education, transfer of science and technology, (R & D), infrastructure and economic diversification. Therefore, the necessity to harmonize these policies with one another is vital for the achievement of the planned objectives.

Three international indicators that are directly related to the innovation system was dependent on the Global Innovation Index, the Knowledge Economy Index, the International Competitiveness Index, and Oman Vision 2020.
Institutional and Social Integration

The Institutional and Social Integration Pillar focuses on the empowerment of effective communication and cooperation between the relevant stakeholders in a way that achieves harmony between policy makers on one hand, and between the institutions that produce, support and benefit from innovation on the other hand. This pillar also includes four key initiatives, under which a number of programs and initiatives emerged. These initiatives are communication and collaboration initiatives, enabling environment initiatives, governance initiatives and knowledge management initiatives.

Mahid Al Mazrui, Head of the Institutional and Social Integration Pillar, said, “The transformation towards a smart government, the development of existing policies, the consolidation of the culture of innovation, and the simplification of government procedures are among the most important pillars of institutional and social integration for the empowerment of innovation.”

The second pillar, Human Capital, is primarily concerned with the empowerment of individuals at all levels and sectors through the development of the systems and policies of public education, higher education, Research and Development (R & D), labor market and also through the creation of an innovative enabling environment.

Hannat bint Ali Al Hinaiya explained that despite the high expenditure rate on education in Oman, the Sultanate’s indicators in this aspect is modest and is reflected in the expenditure rate on R & D, the number of scientific researchers and scientific publications.

“The most important pillars of human capital are the adaptation of the education outputs, labor market needs and the future employment plans, in addition to the enhancement of entrepreneurship culture, and the enhancement of R & D capabilities,” Hannat added.
The Intellectual Property and Knowledge Transfer Pillar aims to convert Oman into a knowledge-based society and also implement an effective system for the protection of intellectual property rights which will benefit the production of innovative ideas, goods and services at both the national and international levels.

Fatima Al-Ghazaliya, Head of Intellectual Property and Knowledge Transfer Pillar, said, “The preparation of the National Intellectual Property Strategy, in collaboration with all stakeholders, the promotion of the dissemination of research findings, and the encouragement of innovation-based economic growth are the main pillars of intellectual property and knowledge transfer”. Al-Ghazaliya pointed out that the proposed strategy of this pillar included seven initiatives that cover a number of programs, including IP capacity building initiatives, IP infrastructure initiatives, initiatives of financing the activities of IP rights, as well as IP culture initiatives.

The Economic Diversification Pillar, which is the fourth pillar of NIS, is considered as the engine for sustainable social and economic development. The Economic Diversification Pillar is driven by innovation aims to create jobs, produce technology, enhance small and medium enterprises, and attract the foreign direct investment (FDI) in all Omani economic-related sectors. Dr. Mohammed Al Jahwari, Economist of the Central Bank of Oman and Deputy Head at the Economic Diversification Pillar of the NIS, said that shifting towards an innovation-based economy requires paying special attention to improving the competitiveness of the various economic aspects. The Sultanate comes in at the 62nd place out of 140 countries, however, we still need a lot of progress in our human resources. Our vision in this pillar is concentrated on the transformation into an innovation-based economy through the creation of an economic enabling environment that can empower innovation-based economic diversification.
A Research Team Develops E-Facial Recognition System

Project Idea
Asma Al Kanoni, one of the principal investigators, stated that the idea of the project is to develop a facial recognition technology that can identify people by recording their facial features and matching them with their pre-recorded information from a database.

Project Phases
Asma Al Kananoni explained the project’s phases as follows:

Phase One: The team completed a literature review of facial recognition research and subspace-based identification of four algorithms, comprising of PCA, 2DPCA, alternative 2DPCA, and 2D² PCA. These algorithms were implemented in a program called MATLAB. Four programs were then created to analyze and compare the subject’s first three facial expressions with ten different pre-recorded facial expressions stored on an ORL database.
Phase Two: A Graphical User Interface (GUI) was created to compare the algorithms by analyzing the first three facial expressions.

Phase Three: The team created a database for the students of Sohar College of Applied Sciences, applying the four programs of the first phase.

Phase Four: The research team incorporated a new programming language called Field Programmable Gate Arrays (FPGA) that includes embedded systems used to create a facial recognition device. The team studied two of FPGA’s embedded programs; Altera DE2 and Nandland Go Boards.

Every single face has its own print and expressions that others do not have.

Project Significance
Umaima Al Naabi, the other principal investigator of the project, stated that the significance of the project is mainly related to the security field. The system created functions by adapting to the different facial expressions and recognizing people entering governmental institutions, airports, boarders stations, or other areas that require high-level security.

Database Sample
The collected database sample included the facial photos of 31 students (22 females and 9 males). A total of 332 different facial expressions were created.

Research Team
Mentor:
Dr. Noushath Shaffi

Principal Investigators:
Asma Al Kaanoni and Umaima Al Naabi
Addiction to Social Networking Sites

Dr. Hafidha Sulaiman Al Barashdiya (Research and Statistics Specialist, Social Observatory), TRC
Social networking sites have become an effective means of social communication, especially among young people, with the most prominent sites, Facebook and Twitter, amassing more than 1.5 billion members worldwide. To take advantage of the internet’s prominent role in our daily life practices, Oman is making the transition into a knowledge-based society.

Young people are most likely to use the social networks and the usage numbers are increasing every day, especially amongst university students. There are positives and negatives of the effects of social networking on social relations and academic achievement but a growing concern in recent times has been rise of social media addiction.

Scientists have clarified the similarities between chemical addiction, such as drug addiction, and addiction to non-chemical behaviors, such as addictions in gambling, Internet, smart phones, and social networking sites. Excessive and compulsive behavior associated with the use of social networking sites and the Internet, has been recently classified as behavioral addiction. Social networking addiction can be defined as the excessive anxiety associated with the over-use of social networking sites, where the individual is strongly driven to log, which steals a lot of time and effort, and obstructs them from their real social activities, study or work life, and negatively affects their physical and psychological health.

Recent study results indicate an increase in addiction to social networking sites around the world, especially with Facebook, which reached 2% among adults in the United States, while up to 1.6% among university students in Nigeria, despite the lack of opportunities access to their Internet compared to developed countries. The Facebook addiction is 8.6% among university students in Peru, while it is up to 12% among Chinese social networking users and 34% among university students. In the Sultanate, there is a lack of studies dealing with the subject of technology addiction and its negative impact on the individual and society, which is why I encourage researchers and interested people to pay attention to this particular field.

The symptoms of this type of addiction are:

- The addicted spends a lot of time thinking about using social networking sites and trying to dedicate more time to them.
- The addicted spends a lot more time using these sites than initially intended, with the desire to increase the usage more and more in order to achieve the same level of pleasure.
- The addicted uses those sites to relieve over thinking, anxiety, insomnia, disability, depression, or in order to forget personal problems.
- When the addicted is banned from using the sites, they tend to show withdrawal symptoms of disturbance or anger.
- The addicted usually does not respond to others advice on reducing their usage.
- The addicted gives less priority to practice hobbies, study, work, exercise, while ignoring family members and friends in real life.
OCCI Innovation Award
Organized by The Research Council

OCCI Innovation Award is organized by TRC with the support of Oman Chamber of Commerce and Industry (OCCI). It aims to motivate the Omani youth by developing their innovative ideas in the scientific and technical fields, and to transfer those ideas into products and useful services. The award seeks to develop innovation, and motivate and sustain the co-operation between components of the community, such as the individuals or institutions of both government and private sectors, and the academic sector in Oman.

**Evaluation Stages:**

1. Allocated money for the best five suggestions.
2. Allocated money for the best two projects (prototypes).
3. An opportunity for adapting the idea in (IPM)
   • An opportunity to participate in international competitions.
   • Prize Money.

**Fields of The Award:**

- Tourism
- Energy
- Food Security
- Environment
- Health
- IT
- Industry
- Logistics

**Stats:**

450 innovators applied
35 projects qualified for the 2nd stage
7 evaluation centers in the 1st stage
14 projects will qualify for the 3rd stage
**Inductively Coupled Plasma Optical Emission System (ICP)**

**Brief Description:** The Optima™ 8000 is a bench-top, dual-view ICP-OES with full-wavelength-range CCD array detector, delivering flexibility and excellent analytical performance. The Optima 8000 offers a wide range of features that are standard on every configuration: Flat Plate™ plasma technology, Plasma Cam™ viewing camera, advanced optical system, patented dual viewing of the plasma, custom-designed solid-state CCD array detector, unique, shear gas system, and adjustable, quick-change torch cassette.

**COST:** This device has been funded under the project titled ‘Chair in Materials Science and Metallurgy’ with a cost of OMR 35,000.

**Research Organization:** University of Nizwa

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**UV-VIS SPECTROPHOTOMETER**

**Brief Description:** Agilent Cary 5000UV-Visible Spectrophotometer with cell holder, WinUV software, desktop PC, printer, solid sample and dual rectangular cell holder. The Cary 5000 sets the standard for the photometric noise, range and linearity, providing excellent resolution across the UV Visible and NIR spectrum. The Cary 5000 combines PbSmart technology with the unparalleled optical design and performance of all Cary UV Vis NIR instruments.

**COST:** This device has been funded under the project title ‘Conjugated Organometallic and Organic Polymers for Light-Emitting Devices and Solar Cells’ with the cost of OMR 25,160.

**Research Organization:** Sultan Qaboos University.
Dr. Ali Allawati: There are 80% of plants that can offer economic and social value.

22 publications in peer reviewed journals.

Obtaining a PhD scholarship was a major step in my life.

Dr. Ali Allawati, Plant Genetic Resources Expert, Oman Animal and Plant Genetic Resources Center, TRC

Date of Birth: 31 July 1968
Dr. Ali went to primary school at Alwaleed bin Abdulmalik School, and in 1986, he completed his secondary certificate from Jaber bin Zaid School. In 1990, he obtained a Bachelor degree from Sultan Qaboos University on Plant Science.
Professional Life and the Academic Studies

Dr. Ali started his professional journey in 1991 as Researcher Assistant with the Ministry of Agriculture and Fisheries, at the General Directorate for Agriculture Research. With his postgraduate studies, Dr. Ali obtained his Master degree from Sultan Qaboos University in Environmental Science; his thesis was on ‘The efficiency of water consumption in feed production’. In 2001, he received a PhD scholarship from the Islamic Development Bank, at New Mexico State University, USA. The study dealt with the use of biotechnology in the development of the new alfalfa varieties under water stressed conditions. Currently, Dr. Ali serves as a Genetic Resources Expert, at Oman Animal and Plant Genetic Resources Center. Generally, the Center’s work focuses on spreading the awareness of the Omani plant diversity, with emphasis on exploiting their economic uses. Dr. Ali is working on the establishment of a plant genetic resources and other organisms database, which will be available to researchers, students and those interested in the field.

22 Publications in Peer Reviewed Journals

Most of Dr. Ali’s publications focused on the efficiency of water consumption in feed production, under different saline environments or under different water stresses, and on the genetic diversity in plants of Oman. He also worked as an external referee for peer reviewed journals, such as the Journal of Crop Sciences, and other regional and local journals in areas related to plant genetic diversity, animal genetic diversity, and agricultural productivity technology. Since 2006, he worked as an international referee for several postgraduate studies. In 2010, he supervised two master degree students at the Sultan Qaboos University.

PhD Degree

On his PhD thesis, Dr. Ali explored genetics and hybridization in search of agricultural varieties that are suited to the conditions of a country with high temperature tolerance, salinity and disease resistance. “My PhD study focused on the development of the alfalfa crop in the United States, to study the characteristics of the drought resistance especially in the South States, which suffers from water scarcity and drought. The purpose of the PhD project methodology is applicable to the Sultanate of Oman.

Looking into the Future

As being an expert in plant genetic resources, Dr. Ali seeks those resources that can offer economic value to the agriculture or industries, such as in pharmaceutics, cosmetics, or aromatic products. Those resources can contribute to economic development by creating jobs related to fields of plants, chemistry, biology, agriculture, and biotechnology. This will create income diversify to the country, instead of relying on specific sources. The Sultanate is rich with animal and plant genetic resources with more than 80% of the 1400 plant species offering economic value.

Local Contributions in Environmental Protection, Conservation, and Plant Environmental Genetic Diversity

Dr. Ali has contributed in the preparation of the Biodiversity Strategy in the Sultanate of Oman with the Ministry of Environment and Climate Affairs. He also participated with the Ministry of Agriculture and Fisheries and with the International Union for the Protection of New Plant Varieties (UPOV) in the preparation of the new plant varieties protection law. With regard to the preparation of the National Innovation Strategy, he served as a facilitator of the Intellectual Property pillar. Currently he is involved in the Intellectual Property Strategy for the Ministry of Commerce and Industry.

Highlights

Receiving an award from the Islamic Development Bank Merit Scholarship for High Technology to complete my PhD studies was a great moment especially at a time when scholarship opportunities were scarce. Receiving this scholarship was a dream that helped me to move forward with my research and academic journey.
Minor Genetic Mutation Enables Life of Multi-Cell Organisms

About 800 million years ago, a minor genetic mutation in a single molecule called guanylate kinase protein-interaction domain (GK-PID) may have allowed organisms to go from a single cell organism to multi-cell ones. This simple genetic mutation allows cells to be copied correctly without becoming cancerous cells.

Two Moons for Earth, Not One!

Astronomers recently announced the discovery of 2016 HO3, an asteroid between 40 and 100 meters in size that behaves as Earth’s quasi-satellite. Discovered as a faint blip on April 27, 2016, by the Pan-STARRS 1 survey based on Haleakala, Hawaii, 2016 HO3 occupies an orbit very much like Earth. Calculations suggest that, though it evaded detection until this year, 2016 HO3 has hung out in Earth's vicinity for a century or so, and will continue to play orbital leapfrog with our world for centuries to come.

Digital Data Storage for Billions of Years

Scientists at the University of Southampton have made a major step forward in the development of digital data storage that is capable of surviving for billions of years. The storage allows unprecedented properties including 360 TB/disc data capacity, thermal stability up to 1,000°C and virtually unlimited lifetime at room temperature (13.8 billion years at 190°C) opening a new era of eternal data archiving. As a very stable and safe form of portable memory, the technology could be highly useful for organisations with big archives, such as national archives, museums and libraries, to preserve their information and records.

Source: Konooz Al-Arab E-Magazine
A Student Research Team Grows Vegetables and Fruits Using Hydroponics

A student team from Al Musanna College of Technology has presented a research project entitled ‘The Smart and Effective Green Houses that Save Energy for Sustainable Agriculture in the Sultanate of Oman’.

The idea of the project is to use greenhouses for aquaculture and mariculture as well as growing vegetables and fruits in aquaponics using hydroponics, and without using soil or chemical fertilizers. This process uses water in fish aquariums and pump it to the aquariums where plants exist. This water contains fish waste which is considered as a source of phosphorus and ammonia that are consumed by plants as food to grow and survive. Meanwhile, the plants purify the water and supply it with oxygen through its roots.

Later, the water is returned to the aquariums by using solar power as a source of energy to run the project. The whole work is controlled by (Arduino), a smart mind, to process the project by controlling the mechanic operator that functions mainly by sensors used to take certain readings to provide the appropriate environment and condition for the plants and fish. In addition, Arduino uses GSM modem to send SMS messages to the owner, and it uses NI LabVIEW program to monitor and check the system of work continuously.

The project is characterized by exploiting and saving areas, in which floors and organized rows of aquariums and aquaponic can be used together in a lesser area. Moreover, the use of solar power as an alternative source of energy instead of electricity, and this can be used to supply the network with power as in present echo-friendly houses. Saving water is another characteristic of the aquaculture and mariculture project through achieving 90% reduction in water consumption compared with the conventional ways of farming.
The Falling Walls Lab

In 2016, TRC hosted for the first time the Falling Walls Lab Competition, and this year, TRC is hosting it again to give an opportunity for innovators and entrepreneurs to present their ideas and compete nationally and internationally. The idea of the competition is to present a pioneering or creative idea about a product or service from different fields in front of the competition jury, within three minutes only. Then, the jury selects the top three ideas out of which only one project is chosen to attend the finals in Germany.

86 Participants
20 Qualified
3 Winners
Weekly Radio Program

‘Interview with a Researcher’

The program invites researchers, funded under various TRC programs, to talk about their work. The program focuses on objectives, results and recommendations of the projects and gives the opportunity to explore the future research projects and their roles in knowledge transfer and spreading awareness.

on:

94.4 FM \ 1242 AM

Broadcasted at 3:40pm every Friday
Re-broadcasted at 11:30am every Saturday
Presented by / Rashid Al Sadi
Directed by / Hamed Al Wardi