RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR

INTER-INSTITUTIONAL DEVELOPMENT SCHEME (IIDS)

<u>Completion Report</u>
(for completed projects only)

Submission Deadlines:	1. *The unspent balance, if applicable, and auditor's report: within* <u>***six***</u> *months of the approved project completion date.*
	2. *Completion report: within* <u>***12***</u> *months of the approved project completion date.*

Part A: The Project and Investigator(s)

1. Project Title

Workshop Series in Data Science and Machine Learning Applications

數據科學及機械學習應用工作坊

2. Investigator(s) And Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Prof. W.L.LO / Head of department	Department of Computer Science / Chu Hai College of Higher Education
Co-Principal Investigator(s)	Dr. Hong FU / Associate Professor	Department of Computer Science / Chu Hai College of Higher Education
	Dr. Ken C.Y. Lau / Manager	Information Technology Service Office / Chu Hai College of Higher Education
Co-Investigator(s)	Prof. Tsoi Ah Chung / Adjunct Professor, Research Coordinator	School of Computing and Information Sciences / University of Wollongong, Faculty of Science and Engineering / Chu Hai College of Higher Education
	Dr. Markus Hagenbuchner / Associate Professor	School of Computing and Information Sciences / University of Wollongong
Others	N/A	N/A

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval *(must be quoted)*
Project Start Date	01 October 2016	1 Jan 2017	N/A
Project Completion Date	30 September 2017	31 Dec 2017	N/A
Duration *(in month)*	12	12	N/A
Deadline for Submission of Completion Report	30 September 2018	31 Dec 2018	N/A

Part B: The Final Report

5.   Collaboration With Other Self-Financing Degree-Awarding Institutions

Collaborating Self-Financing Institution	% of Participation	Distinctive Element(s) that the Institution is Responsible for the Project
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

6.   Project Objectives

6.1   Objectives as per original application

1. *Bring together leading academic scientists, researchers and research scholars to exchange and share their expertise, experience, and research results about the methods and applications of Data Science and Machines Learning.*
2. *It provides an interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Data Science and Machine Learning.*
3. *It provides a one-day workshop to undergraduate students to provide an overview of the current state-of-the-art research in Data Science and machines learning.*
4. *It also provides an opportunity to inspire the local educators in Computer Science to develop and further enhance their curriculum to cover some advance topics in computer science so as to prepare the graduates to pursue further research or professional career development.*

6.2   Revised objectives

Date of approval from the RGC: N/A

Reasons for the change: N/A

1.

2.

3. ....

6.3   Realisation of the objectives
(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

A four-day workshop series including keynote and technical speaking, and student seminar was organized and implemented according to the project objectives.

Topics for keynote and technical speaking:
✧ Progress in AI: From Perceiving, Learning to Behaving Functions
✧ Machine learning: from Shallow to Deep Architecture
✧ Keras and TensorFlow as a Deep Learning Framework
✧ Kernel and support vector machines for graph based data
✧ Robust Non-Contact Three-Dimensional Measurement Based on Fringe Projection Techniques
✧ Camera Identification in Image Forensics
✧ Geometric Tight Frame Based Stylometry for Art Authentication of Van Gogh Paintings
✧ Subspace clustering on incomplete data
✧ Graph neural networks' theory and practice
✧ Multi-label Classification by Semi-supervised Singular Value Decomposition
✧ Object Tracking in Videos
✧ Application of machine learning and digital image processing in dentistry
✧ High resolution self organizing map (HRSOM): theory and applications
✧ Efficient k-means++ with Random Projection
✧ Deep Learning for Machine Translation
✧ Deep Reinforcement Learning Techniques for Spoken Dialog Systems
✧ Image-based Visibility Evaluation using Machine Learning Technique
(Full abstracts of the workshop are in Appendix 2 rundown.)

Speakers: As reported in Section 6.6, eighteen speakers for the workshop were all experts in the area of data science and machines learning applications. Four of them are foreign speakers from Australia and Italy. Fourteen of them are academic and research staff of local institution, including The University of Hong Kong, The Chinese University of Hong Kong, City University of Hong Kong, Hong Kong Polytechnic University, Hong Kong Baptist University, Hang Seng Management College, Chu Hai College of Higher Education and Macau University of Science and Technology. And total 87 participants attended the session of keynote and technical speaking. The workshop brings together leading academic scientists, researchers and research scholars to exchange and share their expertise, experience, and research results about the methods and applications of data science and machines learning. It provides an interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Data Science and Machine Learning.

Topics for student seminar:
✧ Artificial Intelligence- Learning Methods for Fuzzy Systems
✧ Introduction of Neural Networks
✧ Introduction to Object Tracking in Videos
✧ Introduction to High Performance Computing (HPC) Application
Participants: a one-day workshop was provide to undergraduate students to provide an overview of the current state-of-the-art research in data science and machines learning. And total 71 participants attended the session of student seminar.

This workshop provides an opportunity to inspire the local educators in Computer Science to develop and further enhance their curriculum to cover some advance topics in computer science so as to prepare the graduates to pursue further research or professional career development. Evaluation forms (25/50 in day 1, 23/37 in day 2, 21/39 in day 3 and 20/32 in day 4) were obtained. The average score in evaluation form is satisfied in the aspect of content and overall arrangement for this workshop. Some feedback from the speakers were also satisfied (see it in Appendix 11).

Summary of objectives addressed to date

Objectives	Addressed *(please tick)*	Percentage Achieved *(please estimate)*
1. Bring together leading academic scientists, researchers and research scholars to exchange and share their expertise, experience, and research results about the methods and applications of Data Science and Machines Learning.	√	100%
2. It provides an interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Data Science and Machine Learning.	√	100%
3. It provides a one-day workshop to undergraduate students to provide an overview of the current state-of-the-art research in Data Science and machines learning.	√	100%
4. It also provides an opportunity to inspire the local educators in Computer Science to develop and further enhance their curriculum to cover some advance topics in computer science so as to prepare the graduates to pursue further research or professional career development.	√	100%

6.4   Project progress

Original Implementation Schedule	Revised Implementation Schedule (Date of RGC's Approval)	Updated Progress
Phase 1 Invitation, call for workshop participants and expression of interest (Nov-Dec 2016). An organizing committee will be formed which consists of chairman, members and administrative assistants. List of guest speakers and invitation Letters would be prepared and sent out to relevant local, foreign institutions to invite their participation.	N/A	N/A
Phase 2 Confirmation of Overseas and local Scholars and Participants (Jan 2017). In this month, the lists and participants will be confirmed. The work of coordination and communication to participants will be continued.	N/A	N/A
Phase 3 Workshop Planning and confirmation of venues and workshop rundown (Feb-Mar 2017). In these duration, all the work necessary for venues booking, workshop rundown planning,	N/A	N/A

preparation of promotion materials and will be completed.		
Phase 4 Collection of guest speaker lectures' information (Apr 2017). In this phase the workshop materials and programme details are finalized and this information will be complied into workshop booklets. The organizing committee will finalized the workshop booklets and promotion pamphlet for publishing and these materials will be sent to participating organization and other parties.	N/A	N/A
Phase 5 Programme Implementation (May 2017). The workshop is officially launched.	Phase 5 Programme Implementation (June 2017). The workshop is officially launched.	N/A
Phase 6 Programme Conclusion and Consolidation (May 2017). The lecture material, discussion process, design and presentation process of the programme will be included in a report for other institutions' reference.	Phase 6 Programme Conclusion and Consolidation (June 2017). The lecture material, discussion process, design and presentation process of the programme will be included in a report for other institutions' reference.	N/A

6.5   Speaker(s)

Title / Name (Surname in Capital Letters)	Post / Institution	Title / Topic of Presentation / Course	Previous Research Links with Hong Kong Institutions (Nature and Date (Month / Year))
Prof / Dacheng TAO	FIEEE, Professor / School of Information Technologies, The University of Sydney	Progress in AI: From Perceiving, Learning to Behaving Functions	Has worked in HKPolyU, Dept. of Computing as Assistant Professor 2007-2008
Prof / Franco SCARSELLI	Associate professor (full professor habilitation) / Department of Information Engineering and Mathematics, University of Siena	Graph Neural Networks' Theory and Practice	Cooperate Research with HKBU VP (2007-2010) Prof.A.C.Tsoi
Prof / Alessandro SPERDUTI	Professor / Department of Mathematics, PADOVA University	Kernel and support Vector Machines for Graph Based Data	Cooperate Research with HKBU VP (2007-2010) Prof.A.C.Tsoi

Dr / Markus HAGENBUCHNER	Associate Professor / School of Computing and Information Sciences, University of Wollongong	High Resolution Self Organizing Map (HRSOM): Theory and Applications	Cooperate Research with HKBU VP (2007-2010) Prof.A.C.Tsoi Visiting Scholar HKBU 2009
Prof / Francis Yuk Lun CHIN	FIEEE, Chair Professor / Head of Department of Computing, School of Humanities & Social Science, Hang Seng Management College	Deep Learning for Machine Translation	Academic Staff local institution HSMC & HKU
Prof / Michael NG Kwok-Po	Chair Professor in Mathematics / Chair Professor (Affiliate) of Dept. of Computer Science, Hong Kong Baptist University	Multi-label Classification by Semi-supervised Singular Value Decomposition	Academic Staff local institution HKBU
Ir Dr / Daniel P.K. LUN	Associate Professor and Interim Head / Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University	Robust Non-Contact Three-Dimensional Measurements Based on Fringe Projection Technologies	Academic Staff local institution HKPolyU
Dr / Bonnie N. F. LAW	Associate Professor / Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University	Camera Identification in Image Forensics	Academic Staff local institution HKPolyU
Dr / Zheru CHI	Associate Professor/ Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University	Machine learning: from Shallow to Deep Architecture	Academic Staff local institution HKPolyU
Dr / Lai-Man PO	Associate Professor/ Dept. of Electronic Engineering, City University of Hong Kong	Keras and TensorFlow as a Deep Learning Framework	Academic Staff local institution HKCityU
Dr / Alex Po LEUNG	Assistant Professor / Faculty of Information Technology, Macau University of Science and Technology	Efficient k-means++ with Random Projection	Academic Staff MUST, Macau
Dr / Richard T.C. HSUNG	Honorary Assistant Professor / Discipline of Oral and Maxillofacial Surgery, Faculty of Dentistry, The University of Hong Kong	Application of Machine Learning and Digital Image Processing in Dentistry	Academic Staff, HKU
Prof / Ah Chung TSOI	Adjunct Professor / School of Computing and Information Sciences, University of Wollongong	Deep Reinforcement Learning Techniques for Spoken Dialog Systems	Academic Staff local institution VP, HKBU (2007-2010)
Prof / W.L. LO	Professor / Head of Department of Computer Science/ Chu Hai College of Higher Education	Student Seminars	Academic Staff local institution CHCHE
*Dr / Hong FU #Dr / Shengyan LI	*Associate Professor, #Senior Research Assistant / Dept. of Computer	Image-based Visibility Evaluation using Machine Learning	*Academic Staff # Research Staff local institution

	Science, Chu Hai College of Higher Education	Technique	CHCHE
Prof / Raymond Honfu CHAN	Choh-Ming Li Chair Professor and Chairman / Department of Mathematics, The Chinese University of Hong Kong (CUHK)	Geometric Tight Frame Based Stylometry for Art Authentication of Van Gogh Paintings	Academic Staff local institution CUHK
*Prof / Tommy Wai-Shing CHOW #Mr Jicong FAN	*Professor # PhD Student / Department of Electronic Engineering at the City University of Hong Kong	Subspace Clustering on Incomplete Data	*Academic Staff # PhD Student local institution HKCityU
Mr / Pascal Shixiong ZHANG	Research Assistant / Department of Computer Science, Chu Hai College of Higher Education	Object Tracking in Videos	Research Staff local institution CHCHE

6.6   Please provide details of the activities organized, including the theme / objectives of the activities, targeted participants, attendance, analysis of participants, e.g. country of origin, research background, etc., evaluation forms of the activities and a summary of the participants' evaluation.   Photos of the activities are preferred.)

(a) Objectives of the activities

A four-day workshop which consists of daily lectures and seminars in the area of the Data Science and Machine Learning Applications aims to:
- Bring together leading academic scientists, researchers and research scholars to exchange and share their expertise, experience, and research results about the methods and applications of Data Science and Machines Learning.
- It provides an interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Data Science and Machine Learning.
- It provides a one-day workshop to undergraduate students to provide an overview of the current state-of-the-art research in Data Science and machines learning.
- It also provides an opportunity to inspire the local educators in Computer Science to develop and further enhance their curriculum to cover some advance topics in computer science so as to prepare the graduates to pursue further research or professional career development.

Implementation schedule of the project
Program (June 19, 2017 Monday)   Venue: Theatre 1, HKPC Building, Hong Kong

09:00-09:30	Registration
09:30-09:45	**Opening speech – Prof. C. N. Chang** President, Chu Hai College of Higher Education
09:45 - 11:15	**Keynote Speaker 1:** Prof. Dacheng TAO FIEEE, Professor, School of Information Technologies, The University of Sydney *"Progress in AI: From Perceiving, Learning to Behaving Functions"*
11:15 - 11:30	Coffee/Tea break
11:30 - 12:00	**Invited Speaker 1:** Dr. Zheru CHI Associate Professor, Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University *"Machine learning: from Shallow to Deep Architecture"*
12:00 - 12:30	**Invited Speaker 2:** Dr. LAI-MAN PO Associate Professor, Dept. of Electronic Engineering, City University of Hong Kong *"Keras and TensorFlow as a Deep Learning Framework"*
12:30 - 14:00	Lunch break
14:00 - 15:30	**Keynote Speaker 2:** Prof. Alessandro SPERDUTI Professor, Department of Mathematics, PADOVA University, ITALY *"Kernel and support vector machines for graph based data"*
15:30 - 15:45	Coffee/Tea Break
15:45 - 16:15	**Invited Speaker 3:** Ir Dr. Daniel P.K. LUN Associate Professor and Interim Head, Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University *"Robust Non-Contact Three-Dimensional Measurement Based on Fringe Projection Techniques"*
16:15 - 16:45	**Invited Speaker 4:** Dr. Bonnie N. F. LAW Associate Professor, Dept. of Electronic & Information Engineering, Hong Kong Polytechnic University *"Camera Identification in Image Forensics"*
16:45 - 17:15	**Invited Speaker 5:** Prof. Raymond Honfu CHAN Choh-Ming Li Chair Professor and Chairman, Department of Mathematics, The Chinese University of Hong Kong (CUHK) *"Geometric Tight Frame Based Stylometry for Art Authentication of Van Gogh Paintings"*
17:15 - 17:45	**Invited Speaker 6:** Prof. Tommy Wai-Shing CHOW/Mr Jicong FAN Professor ,Department of Electronic Engineering at the City University of Hong Kong *"Subspace clustering on incomplete data"*

Program (June 20, 2017 Tuesday)   Venue: Theatre 1, HKPC Building, Hong Kong

09:00-09:30	Registration
09:30 - 11:00	**Keynote Speaker 3:** Prof. Franco SCARSELLI Professor, Department of Information Engineering and Mathematics, University of Siena, ITALY *"Graph neural networks' theory and practice"*
11:00 - 11:15	Coffee/Tea break

11:15 - 11:45	**Invited Speaker 7:** Dr. Michael Kwok-Po NG Chair Professor in Mathematics, Chair Professor (Affiliate) of Dept. of Computer Science, Hong Kong Baptist University *"Multi-label Classification by Semi-supervised Singular Value Decomposition"*
11:45 - 12:15	**Local Speaker 1:** Mr. Pascal Shi-Xiong ZHANG Research Assistant, Department of Computer Science, Chu Hai College of Higher Education *"Object Tracking in Videos"*
12:15 - 12:45	**Invited Speaker 8:** Dr. Richard T.C. HSUNG Honorary Assistant Professor, Discipline of Oral and Maxillofacial Surgery, Faculty of Dentistry, The University of Hong Kong *"Application of machine learning and digital image processing in dentistry"*
12:45 - 14:00	Lunch break
14:00 - 15:30	**Keynote Speaker 4:** Dr. Markus HAGENBUCHNER Associate Professor, School of Computing and Information Sciences, University of Wollongong *"High resolution self organizing map (HRSOM): theory and applications"*
15:30 - 15:45	Coffee/Tea Break
15:45 - 16:15	**Invited Speaker 9:** Dr. Alex Po LEUNG Assistant Professor, Faculty of Information Technology, Macau University of Science and Technology *"Efficient k-means++ with Random Projection"*
16:15 - 16:45	**Invited Speaker 10:** Prof. Francis Yuk Lun CHIN FIEEE, Chair Professor, Head, Department of Computing, School of Humanities and Social Science, Hang Seng Management College *"Deep Learning for Machine Translation"*
16:45 - 17:15	**Invited Speaker 11:** Prof. Ah Chung TSOI Adjunct Professor, School of Computing and Information Sciences, University of Wollongong *"Deep Reinforcement Learning Techniques for Spoken Dialog Systems"*
17:15 - 17:45	**Local Speaker 12:** Dr. Shengyan LI/ Dr. Hong FU Senior Research Assistant/ Associate Professor, Department of Computer Science, Chu Hai College of Higher Education *"Image-based Visibility Evaluation using Machine Learning Technique"*

Program (June 21, 2017 Wednesday)
Venue: M03, Chu Hai College of Higher Education, Hong Kong

10:00 - 11:30	**Research meeting** All speakers
11:30 - 12:00	Break
12:00 - 14:00	Lunch Break
14:00 - 15:00	**Student Seminars** Dr. M.Markus Associate Professor, School of Computing and Information Sciences, University of Wollongong Applications of High Performance Computing systems for machine learning
16:00 - 17:00	**Student Seminars** Mr. Pascal Shi-Xiong ZHANG Research Assistant, Department of Computer Science, Chu Hai College of Higher Education

	Introduction to Object Tracking in Videos
15:00 – 16:00	**Student Seminars** Dr. Shengyan LI Senior Research Assistant, Dept. of Computer Science, Chu Hai College of Higher Education Introduction to Neural Network

Program (June 22, 2017 Thursday)
Venue: M03, Chu Hai College of Higher Education, Hong Kong

10:00 - 11:30	**Student Workshop/ Lab Demonstration** Prof. Wai-Lun LO Professor, Head, Department of Computer Science, Chu Hai College of Higher Education Applications of Computer Visions & VR Technology- Lab Demonstration
11:30 – 12:30	**Student Workshop** Prof. Wai-Lun LO Professor, Head, Department of Computer Science, Chu Hai College of Higher Education Artificial Intelligence- Learning Methods for Fuzzy Systems

(b) Targeted participants and analysis of participants
Speaker: leading academic scientists, researchers, research scholars and IT professionals from local and foreign institutions
Targeted Audience: researchers, practitioners and educators, students from local institution
Targeted No. of Participants: 40
The workshop was open to all academics and students in both UGC funded and self-financing institutions in Hong Kong. Promotion email and poster (see Appendix 1) were sent to twenty related departments (see Appendix 12), and attracted 50 and 37 participants in day 1 and day 2 for lectures, and 39 and 32 participants in day 3 and day 4 for seminars (see Appendix 10) (Average day1-4: 39.5). Besides the participants from Chu Hai College of Higher Education, more participants were attracted from other institution for lecture section.

Date	Item	Attendance	Institution of participants	
			Chu Hai College	Others
19 June 2017	Lecture	50	13	37
20 June 2017	Lecture	37	10	27
21 June 2017	Seminar	39	24	15
22 June 2017	Seminar	32	22	10

(d) Evaluation forms of the activities and a summary of the participants' evaluation.

The evaluation forms for each day were attached in Appendix 5 and the details of feedback of this forms were attached in Appendix 8. The summary of the evaluation are listed as follows.

Table d-1. Evaluation form for IIDS workshop 2017 on 19~20 June 2017: Keynote speaking

Note: 1 ~ 6 means 'Not satisfied' ~ 'Very satisfied'

Date	No of forms	Part 1. Content of the workshop Are you satisfied with the content?			Part 2. Overall Arrangement of the Workshop Are you satisfied with the arrangement?		
		a. overall content	b. individual presentation				
			Morning Session	Afternoon Session	Registration	Venue	Schedule
19 June 2017	25	5.1	5.1	4.9	5.2	5.3	5.1
20 June 2017	23	5.1	5.0	5.3	5.3	5.4	5.2

Table d-2. Evaluation form for IIDS workshop 2017 on 21~22 June 2017: Student Seminar

Note: 1 ~ 6 in Part 1 &2 means 'Strongly disagree' ~ 'Strongly agree' & 'Not satisfied' ~ 'Very satisfied'

Date	No of forms	Part 1. Content of the workshop Comments				Part 2. Overall Arrangement of the Workshop Are you satisfied with the arrangement?		
		a. How would you rate the workshop?	b. Session: Students seminar					
			1. The speakers are knowledgeable about the topic.	2. I have better understanding of the topics after the seminar.	3.The seminar has met my expectation	Registration	Venue	Schedule
21 June 2017	21	5.0	5.1	4.9	4.9	5.2	5.0	5.0
22 June 2017	20	5.2	5.3	4.7	4.8	5.2	4.7	5.0

Part 3. Any other Comments and suggestions:	
19 June 2017	1) may need more publicity for the conference/workshop 2) Very well organized although controlling the schedule can be improved (ran overtime)
20 June 2017	Well-done, it is better to serve cakes in the morning
21 June 2017	1) Good 2) Too fast
22 June 2017	1) Good and comprehensive 2) More VR 3) Better illustrate with simple application examples. 4) Very Good 5) It would be great to arrange this meaningful workshop in a more decent workspace (say 1/F where daylight can be come in)

The evaluation result shows that the audiences were basically satisfied with the content and overall arrangement of the workshop. For the lecture session, the participants hope to improve the promotion to attract more publicity to the workshop. And they also hope us to improve the schedule control to avoid overtime, and serve cakes in the morning session.

7. **Research-Related Outcome**

7.1 Potential for development into research proposal and the proposed course of action
(Maximum half a page)

This workshop provided a forum for researchers, practitioners and educators to present and discuss the most recent innovations and practical challenges encountered in the field of Data Science and Machine Learning. Educators from local institutions also gained experience and innovation from the workshop so that they can further develop and enhance their program curriculum to cover some advance topics in computer science so as to prepare the graduates to pursue further research or professional career development.

7.2 Research collaboration achieved
(Please give details on the achievement and its relevant impact)

A research meeting was organized during the workshop in the morning of 20 June 2017. Leading scholars, computer science experts and IT professionals from local UGC funded institutions, self-financing institutions and foreign institutions attended the research meeting. In the meeting, current research projects in the Department of Computer Science, Chu Hai College of Higher Education were introduced and the recent progress was shared to explore possibility of research collaboration. The participants gave us some suggestions and were interested in research project related to data science and machine learning applications, specially the application of deep learning technology in the project.

7.3 Any new development and/or challenging research topic(s) has / have been identified and any new initiative(s) for future research has / have been inspired.

Deep learning technology is really a hot topic and widely used in Data Science and Machine Learning Applications. In our research projects, deep learning technology may be suitable to be used in face and pose detection. And we will try to use it in our future research work for better results.

8. **The Layman's Summary**
(Describe in layman's language the nature, significance and value of the research activities, in no more than 200 words)

In this project, a four-day workshop consisting of daily lectures and seminars in the area of data science and machine learning was organized by Chu Hai College of Higher Education. Fifteen leading scholars, computer science experts and IT professionals from local UGC funded institutions and foreign institutions were invited as guest speakers. The topics in the workshops covers different aspects related to latest advances in Data Science and Machine Learning Applications. The workshop was open to all academics and students in both UGC funded and self-financing institutions in Hong Kong. Promotion email and poster were sent to twenty related departments, and attracted 50 and 37 participants in day 1 and day 2 for lectures, and 39 and 32 participants in day 3 and day 4 for seminars. The workshop contained theoretical development as well as practical applications in different areas. Audiences not just learned about the theory, they could also see how the theory can be applied to solve various problems in different application domains. The audiences were interested and eager for discussion and to ask questions. The evaluation result shows that the audiences were satisfied with the content and overall arrangement of the workshop. The project objectives were achieved.

Part C: Research Output

9. **Recognized Conference(s) Paper(s) Related To This Project Was / Were Delivered** *(As Applicable)*
   (Please attach a copy of each conference abstract)

Month / Year / Place	Title	Conference Name	Submitted to RGC *(indicate the year ending of the relevant progress report)*	Attached to this Report *(Yes or No)*	Acknowledged the Support of RGC *(Yes or No)*
Nil					

10. **Research Personnel Trained** *(As Applicable)*

Name	Capacity
Dr. LI Shengyan	Senior Research Assistant, Chu Hai College of Higher Education
Mr. Zhang Shixiong	Research Assistant, Chu Hai College of Higher Education
Mr. LI Bin	Research Assistant, Chu Hai College of Higher Education

11. **Other Impact** *(As Applicable)*
    (e.g. prizes, collaboration with other research institutions, technology transfer, etc.)

The presentation materials have been edited and combined into a summary report, which is kept in the Library of Chu Hai College of Higher Education for internal use. A reference letter issued by College Library is attached in Appendix 11.

12. **Public Access Of Completion Report**
    (Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
Appendix 10 Attendance form	Including personal signature
Appendix 11 Comments from Speakers	Including personal signature

RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR

INTER-INSTITUTIONAL DEVELOPMENT SCHEME (IIDS)

Completion Report - Attachment
(for completed projects only)

RGC Ref. No.:	UGC/IIDS13/E02/16
Principal Investigator:	Prof. LO, Wai Lun
Project Title:	Workshop Series in Data Science and Machine Learning Applications 數據科學及機械學習應用工作坊

Statistics on Research Outputs

	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (Please specify)
No. of outputs arising directly from this research project [or conference]	-	-	-	-	-