UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Matlab's Statistics and Machine Learning Toolboxes Renewal and Upgrade

Title

Farzad Ferdowsi

Name of Submitter

(Faculty or Staff Only)

Electrical & Computer Engineering Department

Organization

Title: Matlab's Statistics and Machine Learning   Date: Jan 17, 2022
          Toolboxes Renewal and Upgrade

Name (Contact Person):   Farzad Ferdowsi

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Department/College/Org: Electrical and Computer Engineering Dept/ College of
                             Engineering

ABSTRACT (250 words or less):

This proposal requests for renewing/upgrading the Statistics and Machine Learning Toolboxes under Matlab's campus-wide license. The current licenses will expire in June 2022. This proposal also requests for 10 additional licenses of Reinforcement Learning (RL) and Simscape. These toolboxes play an important role in keeping UL Lafayette competitive in research/education endeavors related to data science/engineering. Therefore, faculty and students in the College of Engineering and College of Sciences can benefit from these Matlab toolboxes. This proposal not only impacts research activities at both undergraduate and graduate level, but also it can be used in teaching courses that are related to data science. Data science is emerging in different aspects of engineering problems including market, design, control and operation. Global Industry Analysts Incorporated predicts that the data science platform market will grow by $314.8 billion US by 2025, driven by a compounded growth of 38.2%. Therefore, a wait-and-see" approach will keep us away from many opportunities in this multidisciplinary field. The proposed toolboxes enable faculty and students at UL Lafayette to improve their learning and test their innovative ideas.

Purpose of grant and impact to student body as a whole

The main purpose of this proposal is to renew existing Matlab's Statistics and Machine Learning Toolboxes and add 10 Reinforcement Learning and Simscape licenses to the campus-wide Matlab license. The toolboxes mentioned above will be primarily used for:

1- Educational Activities & Course-based Undergraduate Research Experience (CURE): In classes related to data science and machine learning, students can use the proposed toolboxes and work on group projects. These projects will help them to practice team working and obtain new skills such as working with advanced software and tools in the data science/engineering area which is growing very fast. *These activities are in perfect alignment with UL Lafayette's [Advance program](#)* supporting under-graduate research. Additionally, the proposed toolboxes can be used in current projects on campus that support undergraduate research. One of them is a multi-year NSF supported project entitled "Affirmative Scientific Support for Scholars in Energy Technologies (ASSSET)" which is a mentoring program providing more than $400K of scholarships to more than 40 students in the College of Engineering from all classifications. The project team will use the proposed Matlab toolboxes to better educate ASSSET students until 2026.

2- Graduate/Undergraduate Research: Today, data science/engineering is emerging into many research disciplines including but not limited to cyber-physical systems, 3D printing, and energy technologies. Using the requested software/licenses, students will be able to enhance their research work by incorporating user-friendly tools and software such as Matlab into their studies. The proposed toolboxes are easy to learn and deal with , therefore, they will enable faculty and students to effectively perform their research tasks.

Person(s) responsible for

  i. *Implementation*: Mr. Patrick Landry, Computing Support Services
 ii. *Installation*: Mr. Patrick Landry, Computing Support Services
iii. *Maintenance*: N/A
 iv. *Operation*: N/A
  v. *Training* (with qualifications): N/A

*Quotes for all proposed toolboxes are attached to this proposal.

Budget Proposal

1.	**Equipment**	**$0**
2.	**Software**	**$13,858.10**
3.	**Supplies**	**$0**
4.	**Maintenance**	**$0**
5.		
6.	**Personnel**	**$0**
7.	**Other**	**$0**

TOTAL: **$13,858.10**

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Order: 12386079
Order Date: 06/29/2021

Original Order:

Purchase Order: P2102649
Reference:

Item	Description/License Info	Quantity	Unit Price	Extended Price
	Master License 30166694 | University of Louisiana at Lafayette			
	License 166694 | Academic | Concurrent | Perpetual			
MLSMS	MATLAB - Software Maintenance Service (07/01/2021 - 06/30/2022)	75	25.20	1,890.00
SLSMS	Simulink - Software Maintenance Service (07/01/2021 - 06/30/2022)	75	12.60	945.00
BISMS	Bioinformatics Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	40.00	40.00
CMSMS	Communications Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	5	21.00	105.00
VPSMS	Computer Vision Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	31.60	63.20
CTSMS	Control System Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	75	8.82	661.50
CFSMS	Curve Fitting Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	25	10.80	270.00
DSSMS	DSP System Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
DASMS	Data Acquisition Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	25	10.80	270.00
NNSMS	Deep Learning Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	15	15.40	231.00
ETSMS	Econometrics Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	40.00	40.00
ECSMS	Embedded Coder - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
FISMS	Financial Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	40.00	40.00
POSMS	Fixed-Point Designer - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
FLSMS	Fuzzy Logic Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
GDSMS	Global Optimization Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	5	21.00	105.00
HDSMS	HDL Coder - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
IASMS	Image Acquisition Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	31.60	63.20
IPSMS	Image Processing Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	31.60	63.20
IPSMS	Image Processing Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	31.60	31.60
ICSMS	Instrument Control Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	40.00	40.00
MESMS	MATLAB Coder - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	44.00	440.00
COSMS	MATLAB Compiler - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	90.00	180.00
MJSMS	MATLAB Compiler SDK - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	90.00	180.00
MGSMS	Mapping Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	40.00	40.00
MPSMS	Model Predictive Control Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	12	15.40	184.80
OPSMS	Optimization Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	50	8.82	441.00
DMSMS	Parallel Computing Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	3	31.60	94.80
PDSMS	Partial Differential Equation Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
RCSMS	Robust Control Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	12	15.40	184.80
SGSMS	Signal Processing Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
SESMS	SimEvents - Software Maintenance Service (07/01/2021 - 06/30/2022)	7	21.00	147.00
SSSMS	Simscape - Software Maintenance Service (07/01/2021 - 06/30/2022)	5	21.00	105.00
LDSMS	Simscape Driveline - Software Maintenance Service (07/01/2021 - 06/30/2022)	3	31.60	94.80
PSSMS	Simscape Electrical - Software Maintenance Service (07/01/2021 - 06/30/2022)	3	60.00	180.00
PSSMS	Simscape Electrical - Software Maintenance Service (07/01/2021 - 06/30/2022)	2	60.00	120.00
SHSMS	Simscape Fluids - Software Maintenance Service (07/01/2021 - 06/30/2022)	5	21.00	105.00
MSSMS	Simscape Multibody - Software Maintenance Service (07/01/2021 - 06/30/2022)	5	21.00	105.00
VVSMS	Simulink Check - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
RTSMS	Simulink Coder - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	44.00	440.00
SDSMS	Simulink Control Design - Software Maintenance Service (07/01/2021 - 06/30/2022)	17	15.40	261.80
CVSMS	Simulink Coverage - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
SOSMS	Simulink Design Optimization - Software Maintenance Service (07/01/2021 - 06/30/2022)	4	31.60	126.40
DVSMS	Simulink Design Verifier - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
XPSMS	Simulink Real-Time - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
RQSMS	Simulink Requirements - Software Maintenance Service (07/01/2021 - 06/30/2022)	1	100.00	100.00
ELSMS	Spreadsheet Link - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
SFSMS	Stateflow - Software Maintenance Service (07/01/2021 - 06/30/2022)	7	60.00	420.00
STSMS	Statistics and Machine Learning Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	25	10.80	270.00

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Order: 12386079	**Original Order:**	**Purchase Order:** P2102649
Order Date: 06/29/2021		**Reference:**

Item	Description/License Info	Quantity	Unit Price	Extended Price
SMSMS	Symbolic Math Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00
IDSMS	System Identification Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	15	15.40	231.00
WASMS	Wavelet Toolbox - Software Maintenance Service (07/01/2021 - 06/30/2022)	10	15.40	154.00

By Bank Transfer (preferred)
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Mr. Patrick Landry
University of Louisiana at Lafayette
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NEW PRODUCTS

Qty	Product (Part #)	Unit Price	Ext. Price
10	Reinforcement Learning Toolbox (RL)	77.00	770.00
		Subtotal:	**770.00**

Subtotal:	**USD 770.00**
Tax:	**USD 0.00**
Grand Total:	**USD 770.00**

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