List of research topics for NII International Internship Program 2018 1st Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
1. Principles of Informatics Research Division									
1	Theoretical Computer Science	Constant-Time Algorithms on Continuous Objects	http://research.nii.ac.jp/~yyoshida/	Yuichi Yoshida	Associate Professor	PhD students	2	3 months	
2	Theoretical Computer Science	Spectral Submodular Theory	http://research.nii.ac.jp/~yyoshida/	Yuichi Yoshida	Associate Professor	PhD students		3 months	
3	Machine Learning	Machine Learning Based on Submodular Functions	http://research.nii.ac.jp/~yyoshida/	Yuichi Yoshida	Associate Professor	PhD students		3 months	
4	Knowledge Representation and Reasoning	Tensor-Based Automated Reasoning	http://research.nii.ac.jp/il/index18.html	Katsumi Inoue	Professor	Master's or PhD students	4	3-6 months	Basic knowledge of ASP/CP/SAT solving, deductive/abductive/inductive reasoning, GPU computing and/or linear algebra are required. Experience in C++, CUDA, Octave, OpenCL or Python is useful. Contact Prof. Inoue in advance.
5	Knowledge Representation and Reasoning	Integration of Knowledge Representation and Machine Learning	http://research.nii.ac.jp/il/index18.html	Katsumi Inoue	Professor	Master's or PhD students		3-6 months	Knowledge in KR, logics, abduction, ILP, CSP and/or belief change as well as machine learning or representation learning are advantageous to tackle this subject. Contact Prof. Inoue in advance.
6	Machine Learning	Learning Relational Dynamics from State Transition	http://research.nii.ac.jp/il/index18.html	Katsumi Inoue	Professor	Master's or PhD students		3-6 months	Basic knowledge of machine learning and/or neural networks are required. Additionally, knowledge in planning or model checking is useful. Contact Prof. Inoue in advance.
7	Multi-Agent Systems	Resilient AI	http://research.nii.ac.jp/il/index18.html	Katsumi Inoue	Professor	Master's or PhD students		3-6 months	Basic knowledge in AI and constraint optimization as well as computer programming skills are required. Contact Prof. Inoue in advance.
8	juris-informatics	legal reasoning		Ken Satoh	Professor	Master's or PhD students	3	upto 3 month	legal knowledge required
9	juris-informatics	legal argumentation		Ken Satoh	Professor	Master's or PhD students		upto 3 month	knowledge of argumentation semantics in AI is reuqired.

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10	Medical Informatics	argumentation in clinical guidelines		Ken Satoh	Professor	Master's or PhD students		upto 3 month	knowlsdge about medical clinical guideline is necessary
11	Machine learning	Machine learning with discrete structure	http://mahito.info/index_e.html	Mahito Sugiyama	Associate Professor	PhD students	2	6 months	
12	Machine learning	Machine learning with information geometry	http://mahito.info/index_e.html	Mahito Sugiyama	Associate Professor	PhD students		6 months	
13	software verification	separation logic	http://research.nii.ac.jp/~tatsuta/index-e.html	Makoto Tatsuta	Professor	Master's or PhD students	2	2-6 months	
14	Artificial Intelligence / Web Informatics	Semantic Web / Linked Data / Linked Open Data	http://lod.ac	Hideaki Takeda	Professor	Master's or PhD students	3	3-6months	
15	Artificial Intelligence / Web Informatics	Social Web / Social Media Analysis / Social Network Analysis	http://www-kasm.nii.ac.jp/	Hideaki Takeda	Professor	Master's or PhD students		3-6months	
16	Artificial Intelligence	Articiial Social Intelligence: building intelligence systems with social knowledge and social interaction	http://www-kasm.nii.ac.jp/	Hideaki Takeda	Professor	Master's or PhD students		3-6months	
17	Airtificial Intelligence	Machine Learning for Advanced Driving Assistance Systems	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students	4	3 to 6 months	
18	Airtificial Intelligence	Relational Learning for Knowledge Graph / Linked Data	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	
19	Airtificial Intelligence	Data Mining for Large Scale Data	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	
20	Airtificial Intelligence	Ontology Learning	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	

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21	Web & Social Media analysis, Time series analysis	Modeling human activity through mining social time series	http://research.nii.ac.jp/~r-koba/en/index.html	Ryota Kobayashi	Assistant Professor	Master's or PhD students	2	4-6months	Basuc knowledge about Probability and Statistics (e.g. Chapter 1 and 2 in Pattern Recognition and Machine Learning, Bishop C.M.) are necessary. Machine learning and/or natural language processing techniques is appreciated. See papers in my website for details (Aoki et al., 2016; Kobayashi & Lamboitte 2016).
22	Computational Neuroscience, Simulation	Brain simulation	http://research.nii.ac.jp/~r-koba/en/index.html	Ryota Kobayashi	Assistant Professor	Master's or PhD students		4-6months	Basic knowledge about differential equations are necessary. Optimization or simulation methods for differential equations will be appreciated.
23	Cognitive Science	Research on the sense of agency/ownership using immersive virtual reality	http://www.iir.nii.ac.jp/lab/research-e/neurorehabilitation/	Tetsunari Inamura	Associate Professor	Master's or PhD students	3	3-6 months	
24	Intelligent Robotics	Human-Robot Interaction in Vritual/Augmented Reality	http://www.iir.nii.ac.jp/lab/research-e/sigverse/	Tetsunari Inamura	Associate Professor	Master's or PhD students		3-6 months	
100	Numerical linear algebra	Eigenvalue problems and applications	https://www.opt.mist.i.u-tokyo.ac.jp/~nakatsukasa/	Yuji Nakatsukasa	Associate Professor	Master's or PhD students	3	2-6 months	*No.100 has been added on April 24th, 2018.
101	Numerical linear algebra	Conditioning in least-squares problems	https://www.opt.mist.i.u-tokyo.ac.jp/~nakatsukasa/	Yuji Nakatsukasa	Associate Professor	Master's or PhD students		2-6 months	*No.101 has been added on April 24th, 2018.
102	Numerical analysis	Approximation by rational functions	https://www.opt.mist.i.u-tokyo.ac.jp/~nakatsukasa/	Yuji Nakatsukasa	Associate Professor	Master's or PhD students		2-6 months	*No.102 has been added on April 24th, 2018.

2. Information Systems Architecture Science Research Division

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration: 2-6months (less than 180days)	Comments
25	Data Processing	Interoperability of Decentralized Data	http://research.nii.ac.jp/~hu http://www.prg.nii.ac.jp	Zhenjiang Hu	Professor	Master's or PhD students	4	3-6 months	Interested in DSL design and its implementation.
26	Programming Technique	Bidirectional Programming/Bidirectional Transformation	http://research.nii.ac.jp/~hu http://www.prg.nii.ac.jp	Zhenjiang Hu	Professor	Master's or PhD students		3-6 months	Having experience in developing prorgamming tools.
27	Parallel Programming	High-Level Parallel Programming for Processing Big graphs	http://research.nii.ac.jp/~hu http://www.prg.nii.ac.jp	Zhenjiang Hu	Professor	Master's or PhD students		3-6 months	Having experiences of writing parallel programs

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28	Software Engineering	Adaptive Software Development	http://research.nii.ac.jp/~hu http://www.prg.nii.ac.jp	Zhenjiang Hu	Professor	Master's or PhD students		3-6 months	Intereted in developing practical software systems
29	Theoretical Computer Science	Automata-Theoretic Techniques in Formal Verification	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students	4	6 months (or shorter)	Our focus will be on quantiative modeling and verification (probabilistic, weighted, timed, etc.). Desired: solid backgrounds in logic, automata and formal languages
30	Software Science	Machine Learning Techiniques Applied to Search-Based Testing	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Search-based testing of cyber-physical systems (also called "falsification") is attracting attention as a practical quality-assurance technique. It nicely combines formal methods and machine learning on the theoretical sides; on the implementation side there are many interesting challenges, too.
31	Software Science/Control Engineering	Optimization-Based Synthesis of Lyapunov Functions and Other Correctness Certificates	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Correctness certificates for various systems and specifications (Lyapunov functions, ranking functions, invariants, etc.) sometimes allow efficient numeric search via convex optimization algorithms. This is also where software science and control engineering meet.
32	Theoretical Computer Science	Categorical Modeling of Verification Techniques	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Various verification techniques allow abstraction by the language of category theory (especially coalgebras). This sometimes aids generalization and transition from qualitative to quantitative. Desired: familiarity with basic category theory.
33	wireless networking	5G, Connected Vehicles, IoT	http://klab.nii.ac.jp/	Yusheng Ji	Professor	Master or Ph.D students	4	3 to 6 months	Understanding of infrastructure-based and/or ad hoc wireless communication systems is expected
34	mobile computing	Mobile edge computing	http://klab.nii.ac.jp/	Yusheng Ji	Professor	Master's or PhD students		3 to 6 months	Understanding of infrastructure-based and/or ad hoc wireless communication systems is expected
35	Hardware Design	Hardware Accelerator for Neural Networks	http://www.nii.ac.jp/en/faculty/architecture/yoneda_tomohiro/	Tomohiro Yoneda	Professor	Master's or PhD students	1	6 months	

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36	Wireless and Mobile Communication Networks	Energy-efficient spectrum allocation optimization for future 5G wireless access networks	http://www.nii.ac.jp/en/faculty/architecture/kaneko_megumi/	Megumi KANEKO	Associate Professor	Master's or PhD students	3	5-6 months	Required programming skills: Matlab. Basic knowledge in signal processing and wireless/digital communications is required.
37	Wireless and Mobile Communication Networks	Learning-based dynamic radio resource allocation and interference management	http://www.nii.ac.jp/en/faculty/architecture/kaneko_megumi/	Megumi KANEKO	Associate Professor	Master's or PhD students		5-6 months	Required programming skills: Matlab. Basic knowledge in signal processing and wireless/digital communications is required.
3. Digital Content and Media Sciences Research Division									
38	content-based image and video analysis	video and image semantic analysis and search (esp. TRECVID LOC and AVS task. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp	Shin'ichi Satoh	Professor	Master's or PhD students	3	more than 90 days	
39	content-based image and video analysis	identification of specific object in video and image (esp. TRECVID instance search. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp	Shin'ichi Satoh	Professor	Master's or PhD students		more than 90 days	
40	content-based image and video analysis	Video Event Analysis (esp. TRECVID SMKBP or ActEv task. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp	Shin'ichi Satoh	Professor	Master's or Ph.D Student		more than 90 days	
41	content-based image and video analysis	Image and Video Captioning (esp. TRECVID Video-to-Text pilot task or Microsoft Video to Language Challenge: see http://ms-multimedia-challenge.com/challenge)	http://www.satoh-lab.nii.ac.jp	Shin'ichi Satoh	Professor	Master's or Ph.D Student		more than 90 days	
42	Computer Vision and Computer Graphics	Computational Photography: Deep learning, Image-based rendering, Image processing, Color analysis, Spectral imaging	http://research.nii.ac.jp/~imarik/ http://research.nii.ac.jp/pbv/	Imari SATOH	Professor	Master's or PhD students	3	5 to 6 month	A basic knowledge of Image Analysis and/or Machine learning, and good programming skills are required
43	Data Science in intelligent food and cooking recipes	CRWB COoking Recipe Search Engine	https://goo.gl/YE4ZVY	Frederic ANDRES	Associate Professor	Master's or PhD students	6	up to 6 months	Collaboration with SIGCIDC (Special Interest Group on Collective Intelligence and Digital Cooking)

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44	Data Science in intelligent food and cooking recipes	Cooking Execution Plan Generator	https://goo.gl/h1Jqk2	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 6 months	Collaboration with SIGCIDC (Special Interest Group on Collective Intelligence and Digital Cooking)
45	Informationn Science in Intelligent food and cooking recipes	Cooking Process-centric ontology and Linked Open Data	https://goo.gl/ZUDUF4	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 6 months	Collaboration with SIGCIDC (Special Interest Group on Collective Intelligence and Digital Cooking)
46	Computer Science and Math in Intelligent Food	Food Intake Classification Using Off-the-Shelf Sensors	https://goo.gl/sBCRt7	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 6 months	Collaboration with SIGCIDC (Special Interest Group on Collective Intelligence and Digital Cooking)
47	Education Science and higher education	Web Real-Time Communication server for WebELS	https://goo.gl/XFGsXK	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 6 months	project under ISO SC 36 and international coopertions.
48	Computer Science In Intelligent Network	Heterogeneous Ad Hoc Network for Skill sharing	https://goo.gl/tTvQRP	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 6 months	Collaboration with LIMOS/UCA (Universite Clermont Auvergne)
49	computer vision	One of the following topics: (1) 3D vision, (2) Recognizing human activities, (3) Gaze sensing and gaze navigation, (4) Sbject segmentation from video, and (5) DL based image/video generation	http://www.dgcv.nii.ac.jp	Akihiro Sugimoto	Professor	Master's or PhD students	5	Up to 6 months (at least 3 months; a longer period is better)	Rigorous background on mathematics is required. Strong programming skills on image processing and computer vision are also required. In the case of Master course students, highly motivated students who can stay for 6 months are preferable. Students who are willing to pursuit ph D at NII are preferable as well. Potential applicants should send your CV and research interests/proposals directly to Prof. Sugimoto before your application.
50	digital geometry	(1) Discretization model of geometric shape, (2) Discrete shape fitting to noisy integer points.	http://www.dgcv.nii.ac.jp	Akihiro Sugimoto	Professor	Master's or PhD students		Up to 6 months (at least 3 months)	Rigorous background on mathematics as well as computer vision is required. In particular, sufficient knowledge of linear algebra, graph theory and number theory are important requirements. Programming skills on image processing or computer vision are also required. Potential applicants should send your CV and research interests/proposals directly to Prof. Sugimoto before your application.

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51	Multimedia Data Mining and Analysis	People activities analytics in the context of social online presences and real physical behaviours in multimedia landscape (e.g., multimodal deep learning for multimedia content recommendation, personalized venue inference, enhancing online education by leveraging social media techniques).	http://research.nii.ac.jp/~yiyu/	Yi Yu	Assistant Professor	Master/PhD	4	3-6months	
52	Music Information Retrieval and Its Applications	Music discovery (e.g., content-based deep learning for cold start problem in music recommendation, personalized retrieval and playlisting).	http://research.nii.ac.jp/~yiyu/	Yi Yu	Assistant Professor	Master/PhD		3-6months	
53	Speech information processing	DNN-based expressive speech synthesis	Relevant papers include, but do not limited to, [1] Jaime Lorenzo-Trueba, Shinji Takaki, Junichi Yamagishi, A comparative study on modeling and controlling emotional acoustic parameters in neural networks based Japanese and Spanish speech synthesis, 18th SLP symposium, Dec 2016	Junichi Yamagishi	Associate Professor	PhD students	7	3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with statistical parametric speech synthesis. • Familiarity with software tools including HTK, HTS, SPTK, Festival, DNN tools is preferable
54	Speech information processing	Waveform generation for DNN speech synthesis	Relevant papers include, but do not limited to, [2] A Deep Auto-Encoder based Low-Dimensional Feature Extraction from FFT Spectral Envelopes for Statistical Parametric Speech Synthesis, Shinji Takaki, Junichi Yamagishi, Proc. ICASSP 2016 SP-6.7 March 2016	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with statistical parametric speech synthesis and signal processsing • Familiarity with software tools including HTK, HTS, SPTK, Festival, DNN tools is preferable

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55	Speech information processing	Speaker adaptation for DNN speech synthesis	Relevant papers include, but do not limited to, [3] Hieu-Thi Luong, Shinji Takaki, Gustav Eje Henter, Junichi Yamagishi, "ADAPTING AND CONTROLLING DNN-BASED SPEECH SYNTHESIS USING INPUT CODES", Proc ICASSP 2017	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with statistical parametric speech synthesis. • Familiarity with software tools including HTK, HTS, SPTK, Festival, DNN tools is preferable
56	Speech information processing	New DNN architectures and theory for speech synthesis	Relevant papers include, but do not limited to, [4] Xin Wang, Shinji Takaki, Junichi Yamagishi, "Investigating Very Deep Highway Networks for Parametric Speech Synthesis", 9th ISCA Workshop on Speech Synthesis (Satellite workshop after INTERSPEECH 2016) September 2016, [5] Xin Wang, Shinji Takaki, Junichi Yamagishi, "AN AUTO REGRESSIVE RECURRENT MIXTURE DENSITY NETWORK FOR PARAMETRIC SPEECH SYNTHESIS", Proc ICASSP 2017	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with statistical parametric speech synthesis and machine learning. • Familiarity with software tools including HTK, HTS, SPTK, Festival, DNN tools is preferable
57	Speech information processing	Natural language processing for DNN speech synthesis	Relevant papers include, but do not limited to, [6] Xin Wang, Shinji Takaki, Junichi Yamagishi, "Enhance the word vector with prosodic information for the recurrent neural network based TTS system", Interspeech 2016, Sept 2016	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with statistical parametric speech synthesis and natural langauge processing. • Familiarity with software tools including HTK, HTS, SPTK, Festival, DNN tools is preferable

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58	Speech information processing	DNN-based automatic speaker verifications and its anti-spoofing	Relevant papers and webpage include, but do not limited to, [7] ASVspoof 2015: the First Automatic Speaker Verification Spoofing and Countermeasures Challenge, Zhizheng Wu, Tomi Kinnunen, Nicholas Evans, Junichi Yamagishi, Cemal Hanilc, Md Sahidullah Aleksandr Sizov, Interspeech 2015 2037-2041 Sept 2015 [8] http://www.spoofingchallenge.org/	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills. Familiarity with software tools including ALIZE, MSR identity toolbox, Sidekit, DNN tools is preferable
59	Speech information processing	Other modality or multimodality that are relevant to speech synthesis or speaker verification	Relevant papers include, but do not limited to, [9] The use of articulatory movement data in speech synthesis applications: an overview –Application of articulatory movements using machine learning algorithms–, Korin Richmond, Zhenhua Ling, Junichi Yamagishi, Acoustical Science and Technology 36(6) 1-12 Nov 2015	Junichi Yamagishi	Associate Professor	PhD students		3-6 months	Examples of the other modality and/or multimodality include audio visual synthesis/verification, automatic natural language generation, machine translation, articulatory information, and music/singing. The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills. Familiarity with relevant software tools including DNN tools is preferable
60	Digital Humanities	Machine learning for image processing (esp. character recognition), geographic information, linked data and metadata management for cultural heritage	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students	4	3-6 months	A student with programming skills and interests in real problems is preferred.
61	Earth Environmental Informatics	Big data analytics (esp. image processing, remote sensing and machine learning) for solving environmental and societal problems	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.
62	Crisis Informatics	Big data analytics (esp. image processing, natural language processing, and machine learning) for natural disasters and crisis	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.
63	Open Science	Research on a new trend of science, such as open data, data citation, citizen science, and open innovation	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.

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64	Text Media	Analysis and assistance of human reading/writing	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students	3	3-6 months (6 month is preferable)	
65	Text Media	Scientific paper analysis and mining	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students		3-6 months (6 month is preferable)	
66	Text Media	Natural language understanding	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students		3-6 months (6 month is preferable)	
67	Traditional Geometric Computer Vision	3D Reconstruction for Large-Scale Image Collections; 3D Scan Using Mobile Devices; Underwater 3D Reconstruction	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Assistant Professor	Master's or PhD students	4	2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us. .
68	Data-Driven Geometric Computer Vision	Deep Learning for 3D Capture, Point Cloud Denosing, Surface Completion, CAD Model Extraction and Realistic Rendering	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Assistant Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us. .
69	Traditional Photometric Computer Vision	Multispectral and Hyperspectral Imaging System; Spectral Image Denosing and Superresolution; Intrinsic Images; Polarizing Imaging;	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Assistant Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us. .
70	Data-Driven Photometric Computer Vision	Deep Learning for Image Enhancement, Colorization, Style Transfer; Data-Driven Optimal Camera Design for Object Detection and Recognition	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Assistant Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us. .
71	Database Programming Languages	XQuery Fusion	http://research.nii.ac.jp/~kato	Hiroyuki Kato	Assistant Professor	Master's or PhD students	2	2-6 months	

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72	text mining	Text mining based on probabilistic model	http://www.ldear.nii.ac.jp/~takasu/en/	Atsuhiro Takasu	Professor	Master's or PhD students	3	3 - 6 months	
73	Big Data	data analysis and mining methods for (sensor) big data		Atsuhiro Takasu	Professor	Master's or PhD students			
74	Software Engineering, Machine Learning, Testing, Artificial Intelligence	Testing and Quality Analysis of Machihne Learning Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students	5	2 - 6 months	
75	Cyber-Physical Systems, Software Engineering, Testing, Optimization	Intelligent Automated Testing for Cyber-Physical Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students		2 - 6 months	
76	Formal Methods, Software Engineering	Incremental Development and Evolution for Refinement-based System Models	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students		2 - 6 months	
77	Software Engineering, Self-Adaptive Systems, Internet-of-Things	Runtime Validation and Configuration of Smart Space Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students		2 - 6 months	
78	Unmanned Aircraft Systems Traffic Management (UTM) - Scalable Algorithms and Real-time Distributed Systems	Research and development of algorithms for: (1) Scalable Pre-Flight Conflict Detection and Resolution (CDR) among UAVs (Unmanned Aerial Vehicles, or "drones"), e.g. Cooperative A*, Enhanced Conflict Based Search, etc., (2) Real-time In-Flight CDR methods, e.g. ORCA (Optimal Reciprocal Collision Avoidance), and (3) Dynamic Airspace Configuration, e.g. "air highways", for efficient usage of low-altitude airspace. Investigation and implementation of entire UTM architecture, incl. real-world field testing.	www.siliconmountain.jp	Helmut Prendinger	Professor	Master and PhD students	6	4-6 months	This work is part of a new large-scale Japanese Government project on designing, specifying, and testing UTM in Japan. It is similar to NASA UTM in US and u-Space in Europe. Solid programming and software engineering skills; interest to create reliable and robust software that will be deployed in the real world; interest to go to the "field" and test advanced systems in the real world. Longer stay (6 months) is preferred for good result or publication (http://research.nii.ac.jp/~prendinger/)

List of research topics for NII International Internship Program 2018 1st Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
79	Unmanned Aerial Vehicle (Robotics, Electronics, Embedded Systems)	Setup of custom-made UAV configuration based on DJI Matrice 100 and M600 research platform, incl. flight controller, onboard processing, communications, visual and thermal sensing, etc. We are also operating plane-type UAVs, such as PARROT DISCO,	www.siliconmountain.jp	Helmut Prendinger	Professor	Master and PhD students		4-6 months	Solid programming in C/C++; interest in drone-related robotics
80	Deep Learning - Object and Action Recognition	Research and development of Deep Learning models for (1) real-time object recognition and tracking, (2) action recognition, and (3) semantic segmentation (pixel-wise labeling) with the goal of creating a "dynamic map" (DM) from the UAV perspective. DM-based services incl. advanced surveillance, security and generally, situational awareness. The system will be tested by superchip on drone. We already have several models for (1)-(3) running.	www.siliconmountain.jp	Helmut Prendinger	Professor	Master and PhD students		4-6 months	Solid programming skills, e.g., C++ and Python. Solid background in machine learning and Deep Learning. Longer stay (6 months) is preferred for good result and possibly a publication (http://research.nii.ac.jp/~prendinger/)
81	Deep Learning - Infrastructure Degradation Classification	Research and development of Deep Learning models for detecting the type and level of damage of infrastructure. We have a large-scale data set of damaged components of bridges in Japan. The project is a collaborative work with academia and industry.	www.siliconmountain.jp	Helmut Prendinger	Professor	Master and PhD students		4-6 months	Solid programming skills, e.g., C++ and Python. Solid background in machine learning and Deep Learning. Longer stay (6 months) is preferred for good result and possibly a publication (http://research.nii.ac.jp/~prendinger/)
82	signal processing	graph signal processing for image compression / restoration	http://research.nii.ac.jp/~cheung/intern.html	Gene Cheung	Associate Professor	Master's or PhD students	3	3 months minimum	fundamental knowledge in signal processing, linear algebra, convex optimization required
4. Information and Society Research Division									
83	Media Clones	Development of methods for protecting the privacy, biological, and environmental information to prevent fake information generation.	http://www2c.comm.eng.osaka-u.ac.jp/proj/mc/eindex.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students	4	3 to 6 months	

List of research topics for NII International Internship Program 2018 1st Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
84	Media Clones	Verification of the capability of generating various types of media clones such as audio, visual, text, and social media derived from the fake information.	http://www2c.comm.eng.osaka-u.ac.jp/proj/mc/eindex.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
85	Security	Fundamental techniques and systems for content security	http://research.nii.ac.jp/~iechizen/official/research-e.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
86	Privacy	Privacy-enhancing technologies for resolving trade-offs between data anonymity and utility	http://research.nii.ac.jp/~iechizen/official/research-e.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
87	Media Clones	Development of methods for speech synthesis and speaker translation using unpaired data.	http://www2c.comm.eng.osaka-u.ac.jp/proj/mc/eindex.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
88	Software Testing of Machine Learning Programs	Software Engineering for CPS	https://researchmap.jp/nkjm/?lang=english	Shin Nakajima	Professor	Master's or PhD students	1	3-5 months	Contact the supervisor before the application (Programming skills in Python (Topic-1) or Scala (Topic-2) are mandatory)
89	Model Checking of Causal Loops	Software Engineering for CPS	https://researchmap.jp/nkjm/?lang=english	Shin Nakajima	Professor	Master's or PhD students		3-5 months	Contact the supervisor before the application (Programming skills in Python (Topic-1) or Scala (Topic-2) are mandatory)

List of research topics for NII International Internship Program 2018 1st Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration: 2-6months (less than 180days)	Comments
90	Interactive Information Retrieval	Understanding and Modeling User Behaviour during Complex Search Task	The current project page has not been set up, but the previous related project page is available at; http://cres.jpn.org/?FrontPage	Noriko Kando	Professor	Either Master and PhD students are fine, but priority will be given to PhD student	6	6 months	The grand target of the project is to propose a mechanism to support the users conducting complex/exploratory search tasks. As a step toward the target, several internship research tasks are prepared as following, but not limited to: 1) enhance the method to assess the "success" of complex/exploratory search outcome based on Concept map and others, 2) investigate user search bahaviour in terms of dwell time, link depth, search trail, , engagement, perceived task difficulty, cognitive task complexity, and/or outcome, 3) investigate the relationship between user's attributes such as domain expertise, task familiarity, time constraint, etc. and the search behaviour and outcomes, 4) building and/or enhancing the tools usable for the above mentioned 1) -3). Any other topic related to this research direction shall be considered.
91	Interactive Information Retrieval	Investigating what/how Concept map captures each user's search outcome and its influence on the search process		Noriko Kando	Professor	Either Master and PhD students		6 months	Concept map is originally used in the educational science, but it has been used as a tool to capture each user's knowledge structure change during a complex search task such as "search as learning". This project investigates the role of the concept map in the search process through the experiments
92	Argument Mining / Argument Summarization / Argument Structure Analysis	Argument Mining / Argument Summarization / Argument Structure Analysis	https://poliinfo.github.io/	Noriko Kando	Professor	Either Master and PhD students		6 months	Regarding a new challenge on political information analysis in the NTCIR's QA Lab shared task series, this project aims 1) survey of the exisiting literature on argument analysis (mining, summarization, structure analysis), 2) propose system(s) for automatic argument analysis / mining / summarization using either a) NTCIR-14 Polinfo Corpus (Japanese), or b) any other corpus in English. for a), the internship includes hands on tutorials on how to process Japanese text.

List of research topics for NII International Internship Program 2018 1st Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
93	Citation analysis	Citation analysis of the "Information Retrieval" domain		Noriko Kando	Professor	Either Master and PhD students		6 months	To analyse the structure of research area of Information Retrieval (IR) and Interactive Information Retrieval (IIR) using various citation analysis methods including co-citation mapping. Compare the analysis published in 1991*, analyse how the domain had been developped over the three decades [NB: * Noriko Kando et al (1991) "Structure of Information Retrieval Research: Tracking the Specialties and Develpment of Research Using Co-citation Maps and Citation Diagrams"

5. Others

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
94	Databases / Data Mining	Similarity Search and Intrinsic Dimensionality	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-simsearch.pdf	Michael Houle	Visiting Professor	Either	6	3-6 months	Priority given to PhD students, and for internships of 5-6 months.
95	Data Mining	Outlier Detection and Data Dimensionality	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-outlier.pdf	Michael Houle	Visiting Professor	Either		3-6 months	Priority given to PhD students, and for internships of 5-6 months.
96	Data Mining	Clustering and Data Dimensionality	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-clust.pdf	Michael Houle	Visiting Professor	Either		3-6 months	Priority given to PhD students, and for internships of 5-6 months.
97	Data Mining / Machine Learning	Unsupervised Feature Selection	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-features.pdf	Michael Houle	Visiting Professor	Either		3-6 months	Priority given to PhD students, and for internships of 5-6 months.
98	Data Mining / Machine Learning	KNN Classification and Applications	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-classification.pdf	Michael Houle	Visiting Professor	Either		3-6 months	Priority given to PhD students, and for internships of 5-6 months.
99	Theory (Algorithmics, Statistics, Machine Learning)	Theory of Intrinsic Dimensionality	http://zephyrmeh.myqnapcloud.com/houlelab/downloads/proj-id-theory.pdf	Michael Houle	Visiting Professor	Either		3-6 months	Priority given to PhD students, and for internships of 5-6 months.