



会津大学



DIGITAL HUMANITIES

Arts □ Languages □ Human-Centric Software

GT Research Orientation
Fall 2024



Evgeny PYSHKIN

ピシキン エヴゲニー

Ph.D.

Senior Associate Professor

Office 342-B

<https://u-aizu.ac.jp/~pyshe>

*“Computer science draws upon perspectives from many disciplines and has a symbiotic relationship with the liberal arts disciplines, so it might be considered the ultimate of them” **

* H.M. Walker and C. Kelemen, “Computer science and the liberal arts: a philosophical examination,” *ACM Transactions on Computing Education (TOCE)*, Mar 1, 2010, vol. 10, no. 1, pp.2:1–2:10.





Introduction

EXPERTISE, LINKS, AND INTERESTS

Academic Expertise: Courses and Research



- Main page
- Career
- Academic Activity
- Research
- International Links
- Events
- Books
- etc.,....



Evgeny Pyshkin

Arts · Software · Human-centric applications

School of Computer Science and Engineering
University of Aizu · Japan



ACM Member



Friend of the Royal Opera House

<https://u-aizu.ac.jp/~pyshe/>

Undergraduate Courses

- Introduction to Programming
- Programming in C
- Introduction to Data Management

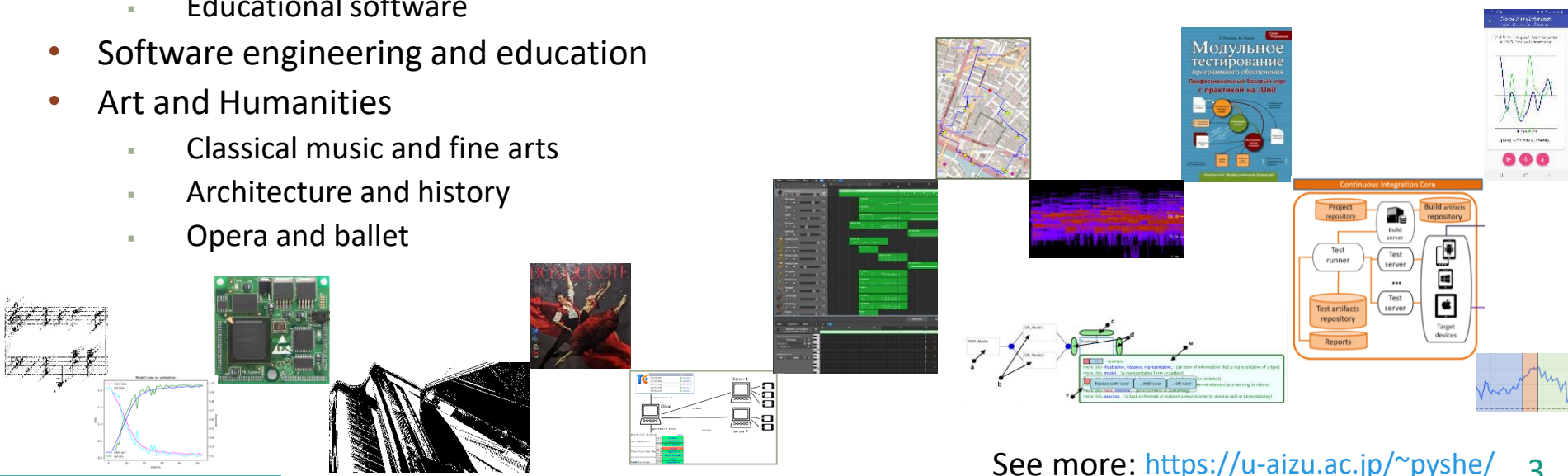
Graduate Courses

- Software and Cultures

- Human-centric applications
 - iCALL environments
 - Speech processing applications
 - Information system for travelers
 - Educational software
- Software engineering and education
- Art and Humanities
 - Classical music and fine arts
 - Architecture and history
 - Opera and ballet

*“We are in era where we are reimagining nearly everything... powered by new devices, plus connectivity, plus new user interfaces, plus **beauty...**”*

Mary Meeker



See more: <https://u-aizu.ac.jp/~pyshe/>

Music: Listening, Performing, Researching...

1/6 WED 6

INTERNATIONAL TALK

Children's Album Piano Concerto

Night in Ylivieska

Ylivieskatalo Akustiikka

25/26 February 2004

Mozart
Grieg
Debussy
Scriabin
Pyshkin

チャイコフスキー、ここに蘇る。
Tchaikovsky is here.

On January 6th, 2021, on the eve of "Russian Christmas", we are celebrating the New Year with a very special edition of International Talk, which, for the first time ever, will be an online CONCERT talk streamed live with Prof. Evgeny PYSHKIN as the performer.

2021年1月6日、ロシアのクリスマスイブに、ピシキン教授をゲストに迎え、オンラインコンサートトークをライブストリーミングでお届けします。国際ナショナルトークの特別版で一編に新年も祝いませんが、

Evgeny Pyshkin ピシキン・エフゲニー教授

CHILDREN'S (?) ALBUM;

International Conference on Advanced Engineering Computing and Applications in Sciences
ADVCOMP 2022
Valencia November 13 – 17, 2022

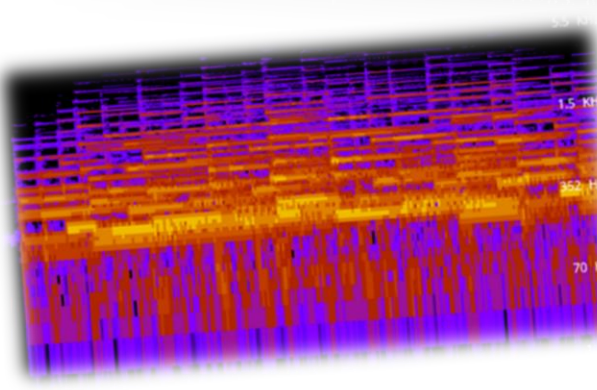
(Un)Like Schumann: Applying Cope's Music Signature Pattern Matching Algorithms to Tchaikovsky's "Children's Album"

Evgeny Pyshkin • Andrei Kuznetsov • Andrey Matveets

University of Aizu
<https://u-aizu.ac.jp/~pyshke/>

JetBrains

Peter the Great St. Petersburg Polytechnic University



Chopin. Nocturne in B Major, Op. 36 No.2 (1837)

Adam. Giselle. Andante from Act I Op. 36 No.2 (1841)

INTERNATIONAL PIANO TALK

RACHMANINOV INCOMPLETE

Never-Ending Rediscovery

Evgeny PYSHKIN concept, talk, piano

Introspective...

Special Talks

From Computational Models for Musicology to Music Models for Speech Visualization

Speaker
Evgeny Pyshkin
Senior Associate Professor, Ph.D.
University of Aizu, Japan

8 February 2023
14:30-16:30
College of Computing,
Prince of Songkla University Phuket, Thailand

Registration here
<https://forms.gle/NC3oBVSU6o9qGt8d>

CoC-PSU organized Special Talks: "From Computational Models for Musicology to Music Models for Speech Visualization"

On February 8, 2023, College of Computing, Prince of Songkla University, Phuket Campus organized a special talk on the topic "From Computational Models for Musicology to Music Models for Speech Visualization" by Assoc.Prof.Dr. Evgeny Pyshkin from Aizu University, Japan. The talk concerns an introduction on how to use various computer technologies to create a piece of music, how to check the pattern of the note arrangement in the music to identify the musical similarity in order to apply for any business purposes such as a music genre or a playlist recommendation or copyright infringement checking.

CoC-PSU organized Special Talks:
"From Computational Models for Musicology to Music Models for Speech Visualization"

iafor **ECE**
The 12th European Conference on Education (ECE2024)
July 11-15, 2024 | Held in London, UK, and Online

The 2024 IAFOR Summer Conference Series in London
Birkbeck UNIVERSITY OF LONDON UCL ECPD OSIPP iafor

THE ARTS for COMPUTING:
Broadening Horizons with Metaphors from Melodies, Masterpieces, and Manuscripts

Interdisciplinary, Multidisciplinary & Transdisciplinary Education
Evgeny Pyshkin • John Blake
University of Aizu

* Rinaldi Rist, Pixel Forest Turicum (2021), Kunsthhaus Zürich, Switzerland

DIGITAL HUMANITIES at the University of Aizu 合津大学
UNIVERSITY OF LONDON • UNIVERSITY COLLEGE OF LONDON

SEMPRE MET 2024

Dispelling the Seven Myths of Tchaikovsky's Children's Album through Computational and Language Modeling

Evgeny Pyshkin • John Blake
University of Aizu

合津大学

Music and Choreography Metaphors in Modeling Spoken Language Rhythm and Its Application to Computer-Assisted Pronunciation Training for Mora-Timed Japanese

Evgeny Pyshkin
University of Aizu

and
Akemi Kusakari
John Blake
Natalia Bogach

iafor The International Academic Forum
KYOTO UNIVERSITY OF EDUCATION

Introspective...



Career After Graduation: International Look

Field Study Guest Lecture



Evgeny PYSHKIN

ピシキン エヴゲニー

Ph.D.

Senior Associate Professor

<https://u-aizu.ac.jp/~pyshe>

*"Computer science draws upon perspectives from many disciplines and has a symbiotic relationship with the liberal arts disciplines, so it might be considered the ultimate of them"**

2024^{08/11}
12:00 – 15:00

DIGITAL HUMANITIES at
THE UNIVERSITY of AIZU
**OPEN CAMPUS
2024**

Royal Doulton's Vintage Figurines
and
**FINE PORCELAIN RESTORATION WITH
3D MODELING and KINTSUGI ART**

Research Quadrangles 342-D

Aalto and Japan: Interinfluence of Environmental Integration Architecture Idioms

Evgeny Pyshkin

Software Engineering Lab
University of Aizu



The University of Aizu, Evgeny Pyshkin, 2017



Aalto House in Bihlitz,
<https://www.discoveringfinland.com/destination/the-aalto-house/>



Evgeny Pyshkin, Nordcode-2019
Nov 27 – 29, 2019



佐藤賢太郎先生の宙 会津へ 世界へ

Kentaro Sato's Universe

for Aizu and for the World

Evgeny PYSHKIN

University of Aizu

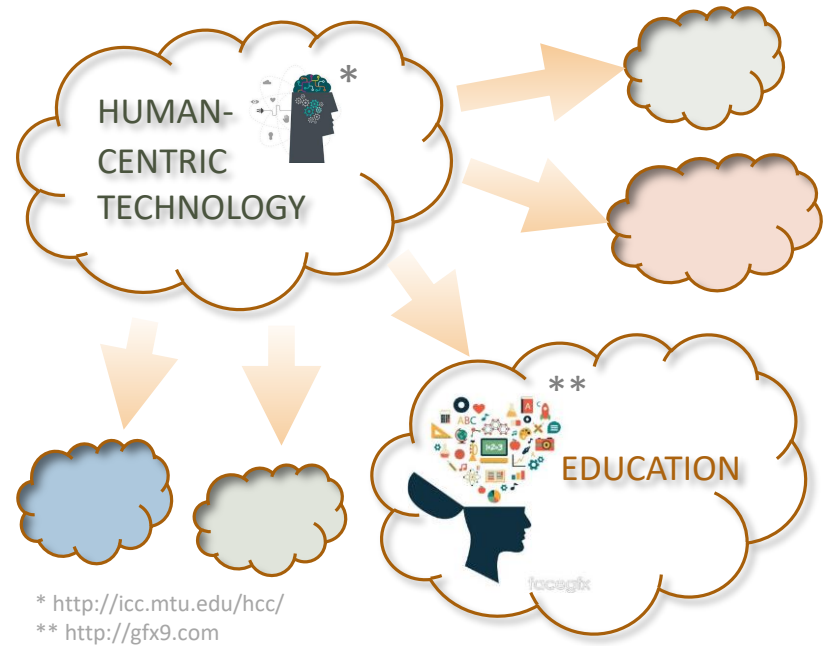
The 2024 Open Campus Public Lectures



* Kentaro Sato's open air stone sculpture in [Byuunji Temple](#), Iwaki, Fukushima pref. (2022)

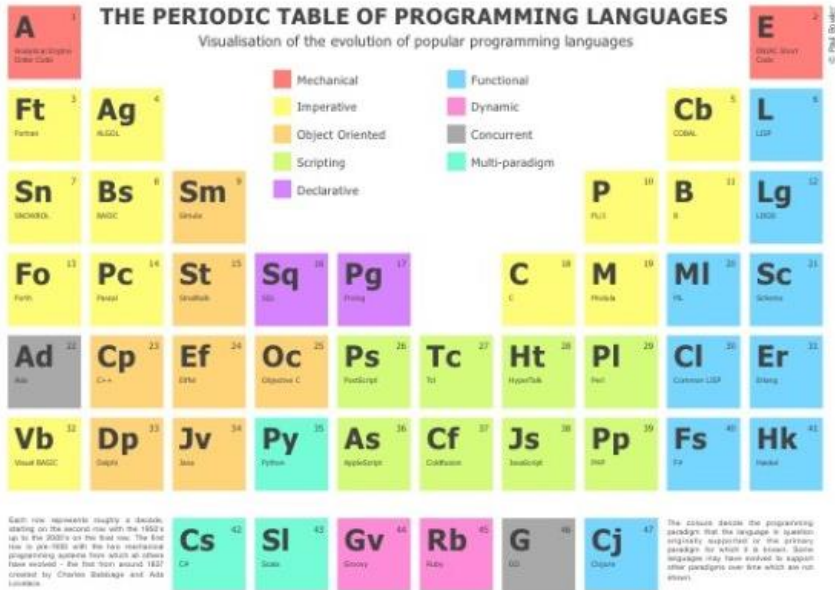


Areas and Projects



FROM AREAS OF INTEREST TO THEME PROPOSALS

Area: Exploring the World through Languages



Kerry Pain, The most popular coding languages of 2015, June 5, 2015,
<https://www.linkedin.com/pulse/most-popular-coding-languages-2015-kerry-pain>

– Mikä on ensimmäinen kieli, joka kehittäjän tulee osata?
 – Suomi.



– What language has the developer to know first of all?
 – English.



開発者はまず
 はじめに何語を
 知るのか
 日本語



Project: Computer Assisted iCAPT Environment

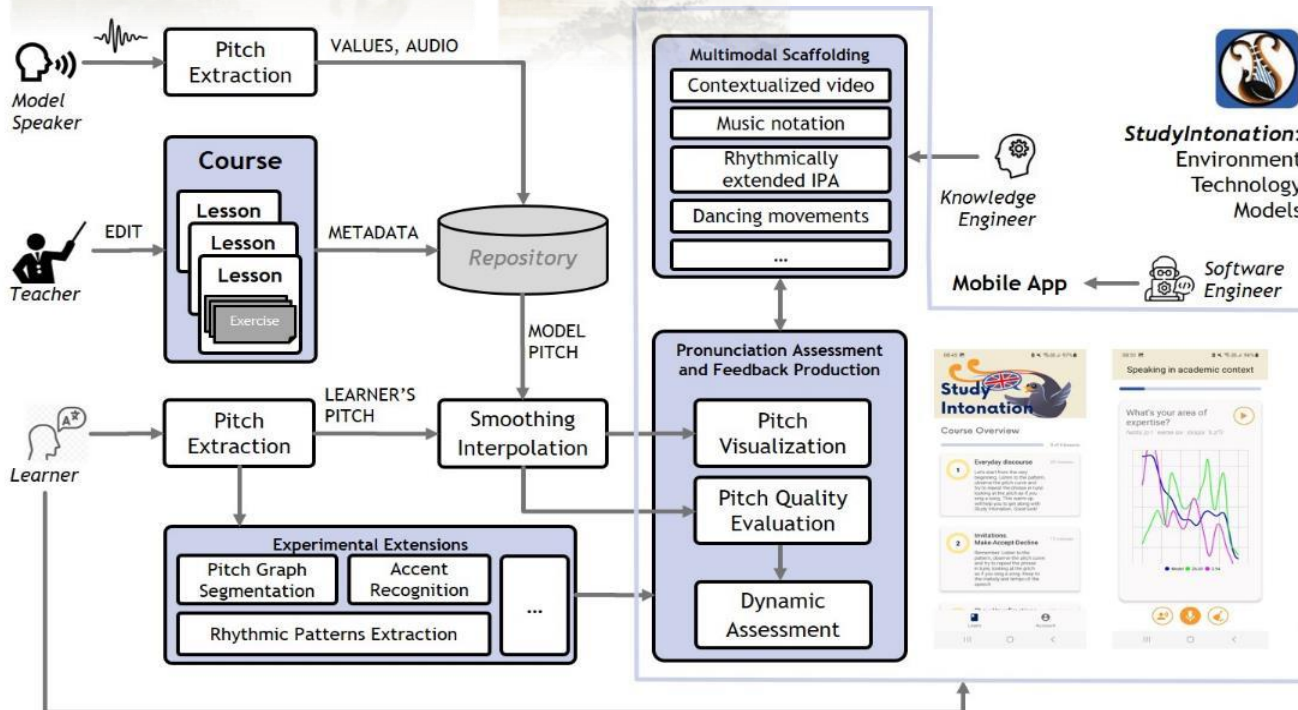
* <https://silverbirchpress.wordpress.com/2014/06/16/frog-haiku-by-matsuo-basho-translated-by-hidesaburo-saito/>



* https://en.wikipedia.org/wiki/Matsuo_Basho

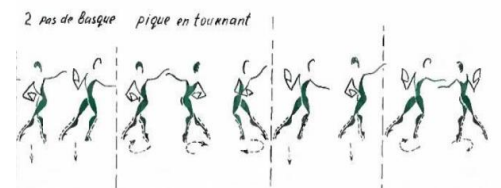
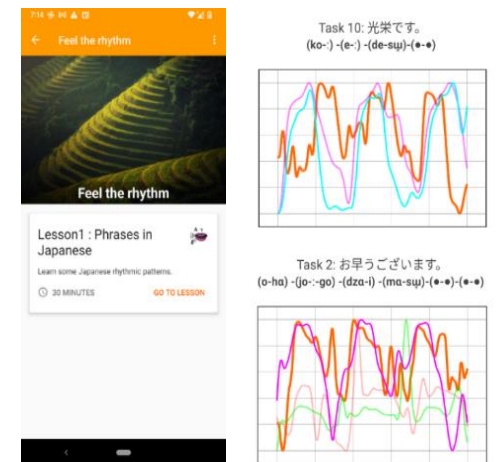
Portrait of Basho
Hokusai, late XVIII

ふるいけや
かわずとびこむ
みずのおと



StudyIntonation:
Environment
Technology
Models

Mobile App ← Software Engineer



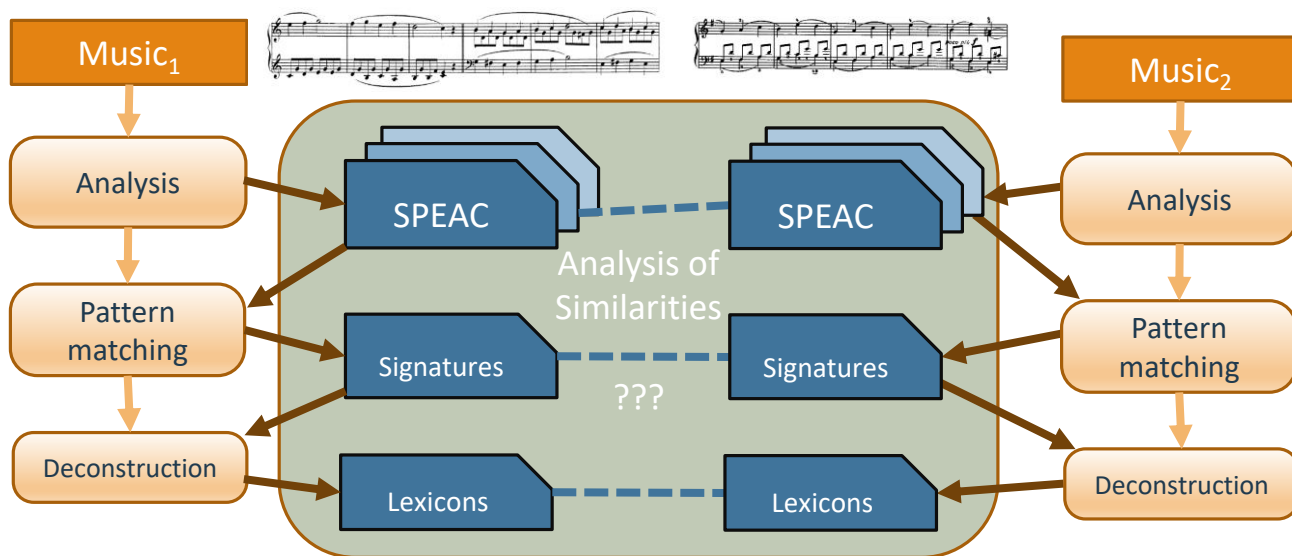
Area: Computational Models for Musicology

Current approaches to music similarity evaluation mostly target the searching and retrieval systems, but there is no perfect fit to the problems of stylistic similarity evaluation.



Among the models assumed to be more adequate to the problem of music style identification:

- Functional representation of music along with harmony and harmonic similarity estimation¹
- Modeling music structure using ontology and graph-based representations²
- Automated extraction of music signatures³
- Classification based on machine learning algorithms



¹ A. Kuznetsov and E. Pyshkin, "Function-based and circuit-based symbolic music representation, or Back to Beethoven," HCCE-2012.

² E. Pyshkin, "Towards Demystifying Transformations of Tchaikovsky's Children's Album with Support of Computational Models: Problem Conceptualization," ADVCOMP 2021.

³ E. Pyshkin, A. Kuznetsov, and A. Matveets, "(Un)Like Schumann: Applying Cope's music signature pattern matching algorithms to Tchaikovsky's Children's Album," ADVCOMP 2022. To appear.

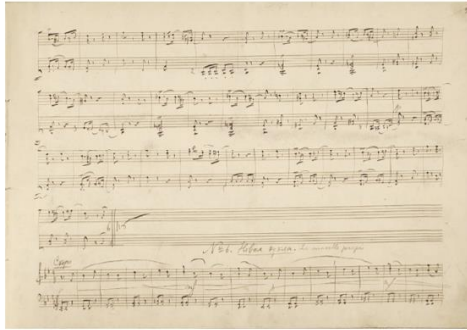
Chopin. Nocturne in C Sharp Minor, Op. posth. (1830)



Project: Analysis of Particularities of Human Music Perception



(a) Subtitle "imitating Schumann"



(b) Fragment of No. 5 "March of Wooden Soldiers" immediately followed by No. 6 "A New Doll" on the same sheet

Current Case Study: Tchaikovsky's "Children's Album"



We applied Cope's signature elicitation algorithms

- Signature is a set of contiguous intervals found in more than one work by the same composer¹.
- Signatures represent composition-independent patterns, which do not sound as an excerpts from a particular work, but rather represents a characteristic description of one of composer's style elements.



● TCHaikovsky ● SCHumann ● VIValdi

Composer	Acronym	Signatures (including variations)	Compositions
Tchaikovsky	TCH	19	13
Haydn	HAY	20	8
Beethoven	BEE	9	8
Mozart	MOZ	8	7
Vivaldi	VIV	13	5
Bach	BAC	1	1
Schumann	SCH	5	3

¹ D. Cope, Computers and musical style. Oxford University Press Oxford, 1991, vol. 6.

Area: Cultural Studies – Pottery

Learning Connections between Western and Japanese Traditions

From organizing an exhibition to advanced cultural studies and computer technology applications

- Existing links between English and Japanese pottery making traditions
- Precious objects of decorative ceramics
- Educational perspectives



Royal Doulton's English Ladies
EDITH (DEEDIE) PLOWRIGHT COLLECTION

Vintage
Porcelain
Figurines
produced
by
Royal
Doulton
(England)



Arts • Inspiration • Fashion • Lifestyle



Project: Immersive Virtual Kintsugi within the Pottery Restoration Workflow

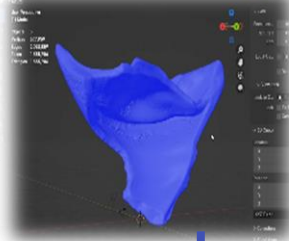
Fragility, cutting-edge 3D modeling and virtualization technology, transformations...

金継ぎ

Restoration Workflow

Modeling and Training Workflow

Extra Outcome



Area: Performing Arts



CONTENTS

SYNOPSIS	24
THE SWAN'S LONG SWIM TO GRACE Tim Scholl	28
TCHAIKOVSKY AND THE IMPERIAL THEATRES Rosamund Bartlett	34
STRANGE AND MANFOLD MUSIC Gavin Plumley	38
MARIUS PETIPA Tim Scholl	44
LEV IVANOV Tim Scholl	46
LIAM SCARLETT Debra Craine	48
BIOGRAPHIES	52



CAST

- Odette/Odile
- Prince Siegfried
- The Queen
- Von Rothbart
- Benno
- Prince Siegfried's Younger Sisters

- Marianela Nuñez
- Vadim Muntagiurov
- Elizabeth McGorian
- Gary Avis
- Luca Acri
- Isabella Gasparini, Sae Maeda



Project: Personalized Virtual Theater Diary

General Concept

- Manageable information representing the links between/to:
 - Work
 - Title, genre, creation time, ...
 - Author
 - Composer, choreographer, ...
 - Director, stage designer, costume designer ...
 - Performer
 - Dancer, Musician, Singer ...
 - Beholder
 - Attending performance date, watching stream, ...
 - Traveling experience
 - Personalized list of favorites, etc.
 - Media
 - DVD, Blue-ray, video file, stream, ...
 - Images, posters, ...
 - ...

Informal and
personalized



Area: Cultural Studies –Architecture

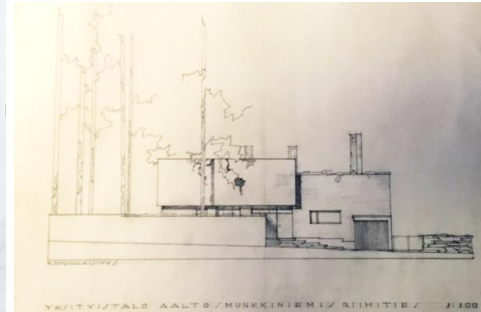
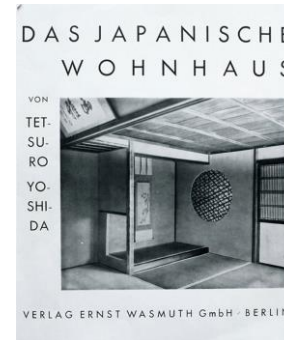
Alvar Aalto and Japan: Mutual Discovery of Environmental Integration Architecture Idioms¹

From “*Das Japanische Wohnhaus*” to soft modernism

- Aalto’s approach was not a simple adoption of Japanese patterns to western architecture, but synthesis of “his personal idioms, built forms and architectural details”²
- One of such idioms is a careful composition of house and garden designs

Towards an Architecture of Meaningful Environmental Integration

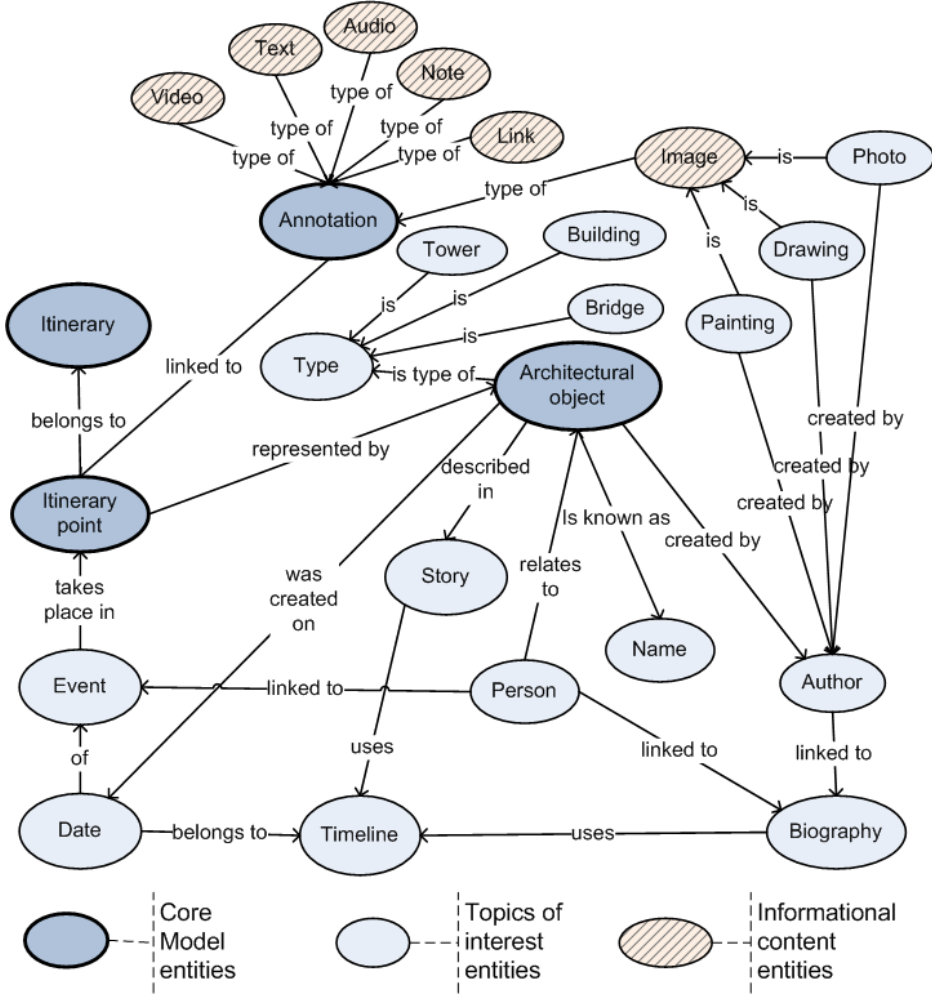
- “Nordic architecture” in Fukushima: Hotel Hotelliaalto designed as a collaboration project of Yoshihiro Masuko, Toshikazu Kawai, and Shintaro Otake
- The Iwaki museum and library of picture books a meaningful but less known project by Tadao Ando (born 1941)



¹ E. Pyshkin, "Alvar Aalto and Japan: Mutual discovery of environmental integration architecture idioms," *Academia Letters*, 2021, Article 1749. DOI: <https://doi.org/10.20935/AL1749>

² Chiu, C. Y., Niskanen, A., & Song, K., "Humanizing Modern Architecture: The Role of *Das Japanische Wohnhaus* in Alvar Aalto's Design for His Own House and Studio in Riihitie," *Journal of Asian Architecture and Building Engineering*, 16(1), 1-8.

Project: Informational Approach to Learning Architectural Styles



The project is about designing the ontology and related software aimed at creating a personalized environment for learning building architectures, including finding the ways to present particularities of architectural styles, to learn how different styles interact, to introduce particular architectural attractions and their creators to learners and travelers

We are also interested in developing mobile tools for those who are interested to extend and share their architectural knowledge and discoveries.

- Many resources exist
- How to create more personalized solutions?
- How to leverage rich but very different experience of users with contrasting interests and significant gaps in their expertise?

Project?.. thinking ...

Did not find your theme?

DO YOU HAVE YOUR OWN CREATIVE IDEA in SCOPE of PRESENTED AREAS?

- ***Come to our team, and we will organize a brainstorming session!***



Join our team...

- ... if you are creative*
- ... if you want to create high class software, including software for mobile devices*
- if you are interested in joining our international projects and working in an international community*
- if you are interested in cross-disciplinary projects*

... if you love

art,

music,

poetry,

dance,

architecture...

