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We acknowledge that the University of British Columbia-Vancouver is situated on the unceded territory of the Musqueam First Nation, and that UBC-Vancouver and -Okanagan are situated on the traditional territories of the Musqueam, Squamish, Tsleil-Waututh, and Okanagan First Nations.

Nous reconnaissons que l'Université de la Colombie-Britannique-Vancouver est située sur le territoire sans précédent de la Première nation de Musqueam et que l'UBC-Vancouver et -Okanagan sont situés sur les territoires traditionnels des Premières nations de Musqueam, Squamish, Tsleil-Waututh et Okanagan .





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UBC School of Music





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UBC School of Music

Conservatory modeled program

Five major areas of study

- **Performance**
- **Composition**
- **Theory**
- **Musicology**
- **Ethnomusicology**





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Composition

- **Undergraduate, Masters, Doctorate**
- **Usually 12 undergraduates, 12 graduates**
- **Many students have an interest in music technology**



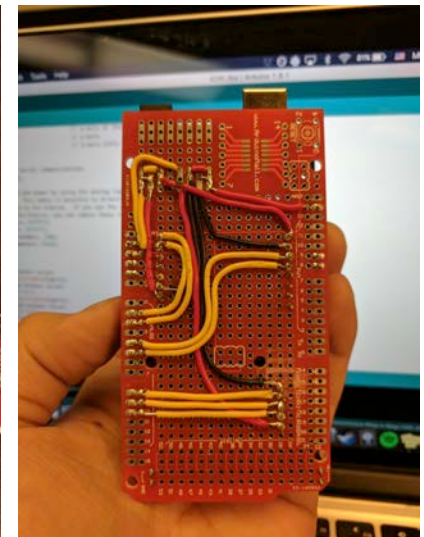


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Music Technology

- Undergraduate minor: 24 credits, 4 years
- Composition, programming, synthesis theory, performance
- 4th year capstone project (hardware/software)



Music Theory

- **Significant work in post tonal analysis and rhythm**
- **Perception of rhythm and polymeter**

Perception of rhythm and polymeter

○ = 90+ pulse
 [] = 90+ repeat
 * = Rogue pulse

The image shows a musical score for piano, consisting of two staves (treble and bass clef) in 4/4 time. The score is annotated with various symbols and text to illustrate concepts of rhythm and polymeter. Above the staves, there are three horizontal brackets, each labeled with a note and a tempo marking: $17 \text{ ♩} = \text{MM } 23$, $17 \text{ ♩} = \text{MM } 23$, and $23 \text{ ♩}^5 = \text{MM } 21$. Below the staves, there are two horizontal brackets, each labeled with a note and a tempo marking: 16 ♩^3 and $16 \text{ ♩}^3 = \text{MM } 18$. The score includes dynamic markings such as *p*, *mp*, *mf*, and *f*. There are also annotations like *p* and *mf* with a circled '8' below them. The score is divided into measures by vertical bar lines, and some measures are grouped by brackets. A legend at the top left explains the symbols: a circle represents a pulse of 90+, a bracket represents a repeat of 90+, and an asterisk represents a rogue pulse. The score is labeled 'Piano' on the left side.



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Facilities of interest

- **Computer Music Studio**





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Facilities of interest

- **ICICS Sound Studio**





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Facilities of interest

- **Roy Barnett Recital Hall**





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Facilities of interest

- **Chan Centre for the Arts**





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ACTOR-affiliated Personnel

Music technology, composition, orchestration

Keith Hamel



Bob Pritchard





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ACTOR-affiliated Personnel

Composition, orchestration
Dorothy Chang



Orchestral conducting
Jonathan Girard





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ACTOR-affiliated Personnel

Music theory, cognition
Richard Kurth



Ève Poudrier





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Research Interests: Notation: NoteAbilityPro

The screenshot displays the NoteAbilityPro software interface, which is used for creating and editing musical notation. The main window shows a score with two staves. The top staff is in 4/4 time and contains a melodic line with various dynamics (pp, mf, f) and articulations. The bottom staff is in 4/4 time and contains a bass line. The interface includes a menu bar (File, Edit, Format, Tools, Modify, Font, Window, Help) and a status bar (interactive.na Page 1 of 11 pages). On the right side, there is a Control panel with various buttons and sliders for editing the score. Below the Control panel is the NoteAbility Inspector, which shows articulations and time signatures. The bottom of the screen shows a Windows taskbar with various icons.

Control Panel:

- COMMAND: s
- Measure: 2, Page: 1
- Beat: 1.75, Staff: 3
- Sub Beat: 1, Voice: 1
- Buttons: Step Back, Slur Notes, Set Voice, Insert Rest, Tie Notes T
- View: 100%, Size: 24
- Buttons: Format System, Set Size, Format Page, Restore Size, Set Image Colour, Restore to Black
- Buttons: Play Staff ID 1, Play This Staff

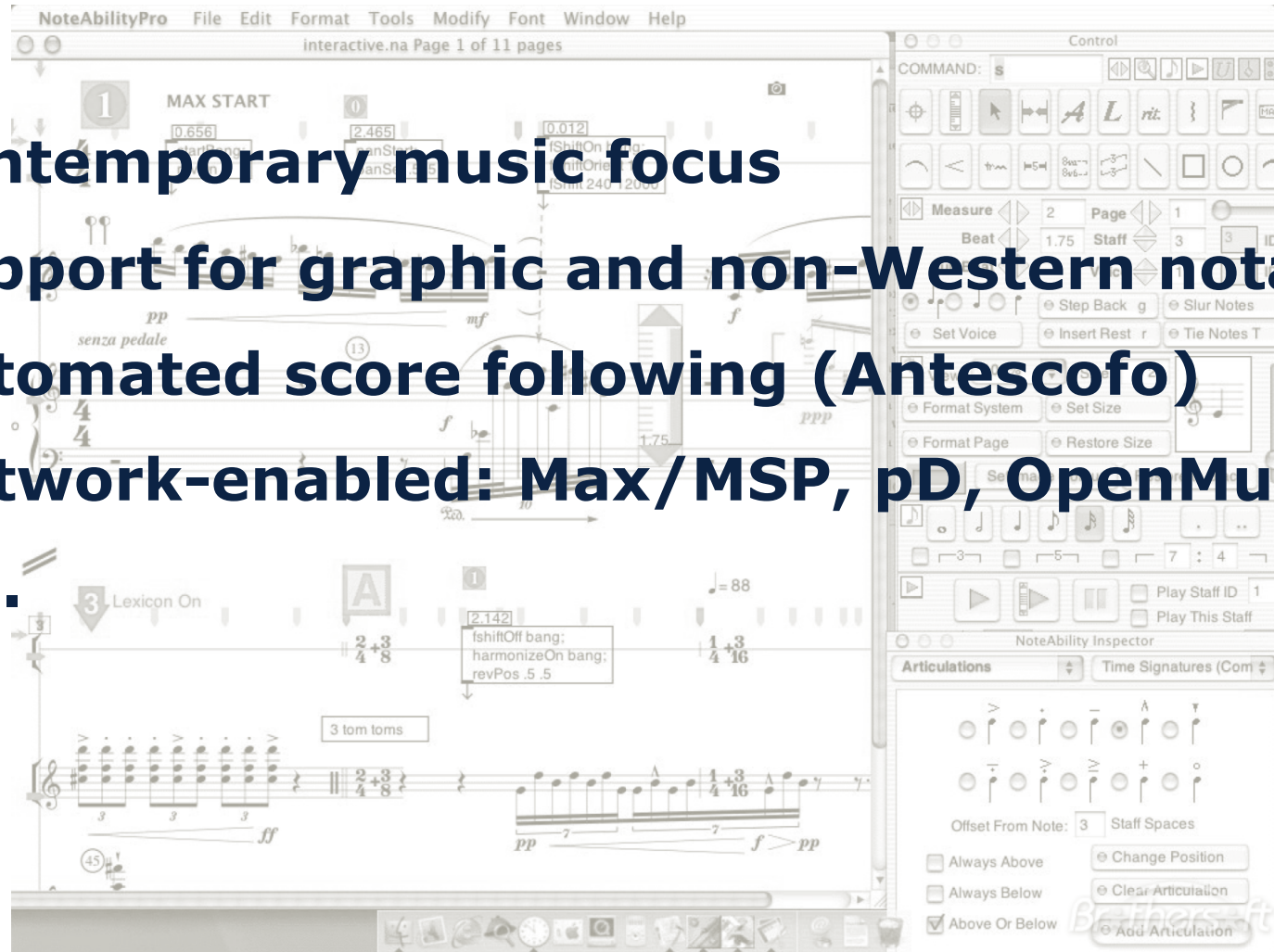
NoteAbility Inspector:

- Articulations: >, <, ^, v, ~, ~~, ~~~, ~~~~
- Time Signatures (Com): 2/4, 3/4, 4/4, 5/4, 6/4, 7/4, 8/4, 9/4, 10/4, 11/4, 12/4, 13/4, 14/4, 15/4, 16/4, 17/4, 18/4, 19/4, 20/4, 21/4, 22/4, 23/4, 24/4, 25/4, 26/4, 27/4, 28/4, 29/4, 30/4, 31/4, 32/4, 33/4, 34/4, 35/4, 36/4, 37/4, 38/4, 39/4, 40/4, 41/4, 42/4, 43/4, 44/4, 45/4, 46/4, 47/4, 48/4, 49/4, 50/4, 51/4, 52/4, 53/4, 54/4, 55/4, 56/4, 57/4, 58/4, 59/4, 60/4, 61/4, 62/4, 63/4, 64/4, 65/4, 66/4, 67/4, 68/4, 69/4, 70/4, 71/4, 72/4, 73/4, 74/4, 75/4, 76/4, 77/4, 78/4, 79/4, 80/4, 81/4, 82/4, 83/4, 84/4, 85/4, 86/4, 87/4, 88/4, 89/4, 90/4, 91/4, 92/4, 93/4, 94/4, 95/4, 96/4, 97/4, 98/4, 99/4, 100/4
- Offset From Note: 3 Staff Spaces
- Buttons: Always Above, Always Below, Above Or Below, Change Position, Clear Articulation, Add Articulation



Research Interests: Notation: NoteAbilityPro

- Contemporary music focus
- Support for graphic and non-Western notation
- Automated score following (Antescofo)
- Network-enabled: Max/MSP, pD, OpenMusic, etc.





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Research Interests: Automated score following





Research Interests: Automated score following

- Using pitch or gesture tracking
- Accelerometers, blob tracking, background subtraction, infra-red

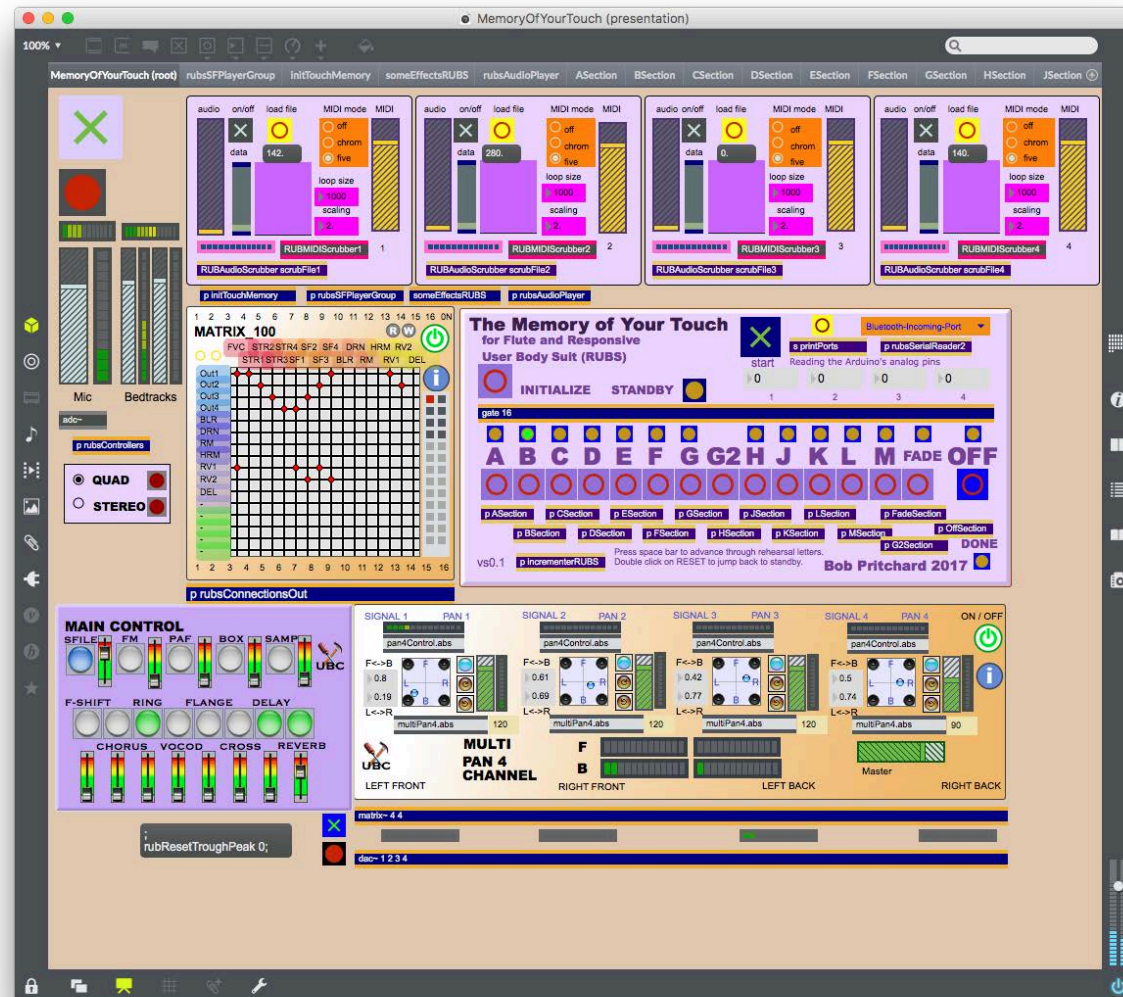




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Research Interests: Interactive/responsive environments



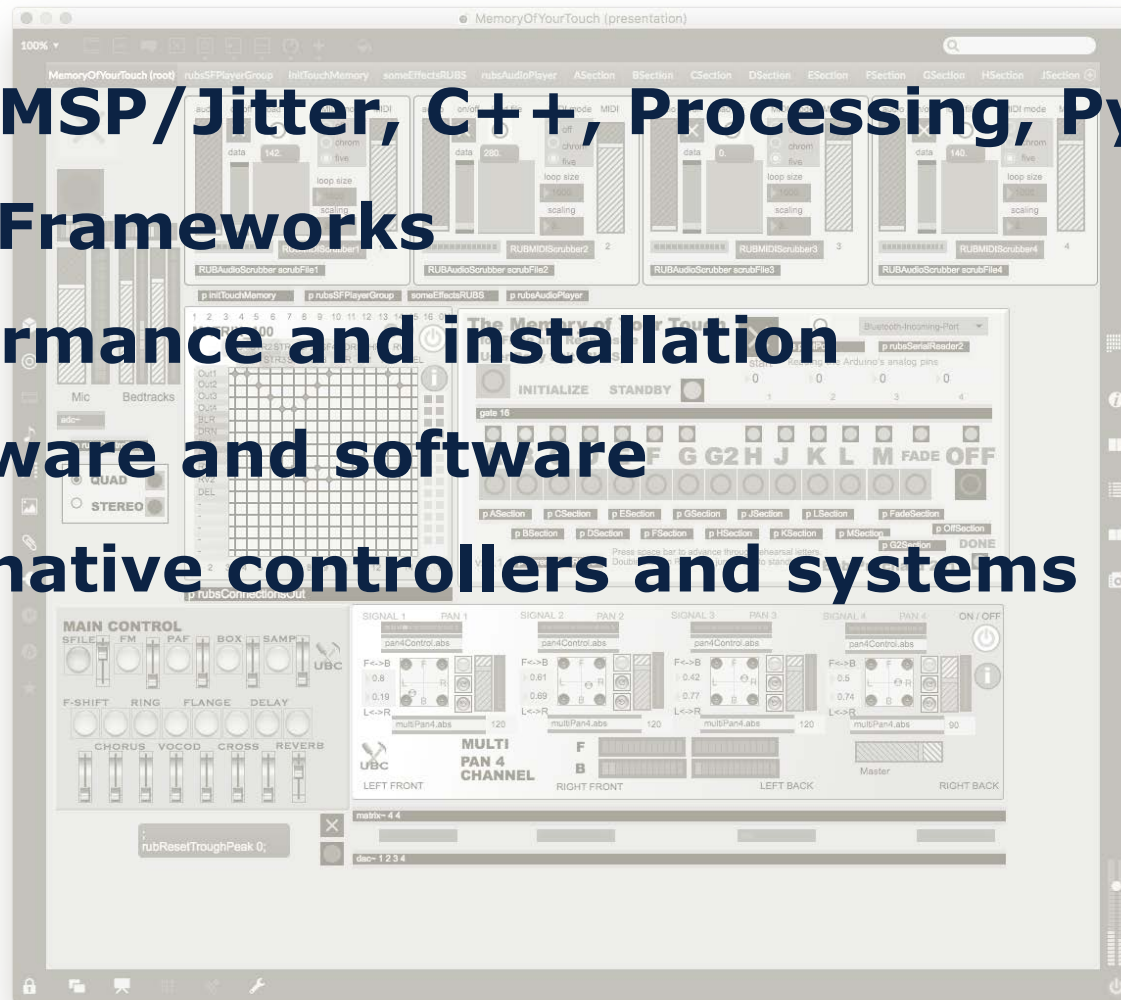


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Research Interests: Interactive/responsive environments

- **Max/MSP/Jitter, C++, Processing, Python, OpenFrameworks**
- **Performance and installation**
- **Hardware and software**
- **Alternative controllers and systems**





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Research Interests: Interactive/responsive environments

- **NoteAbilityPro and remote messaging**
- **Blending of acoustic and electroacoustic/processed sources**
- **Realtime video control/processing**
- **Spatialization**





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Research Interests: Interactive video





Research Interests: Interactive video

- **Controlled with gesture tracking, Kinects, alternative controllers**
- **Affects triggering, speed, processing, content**

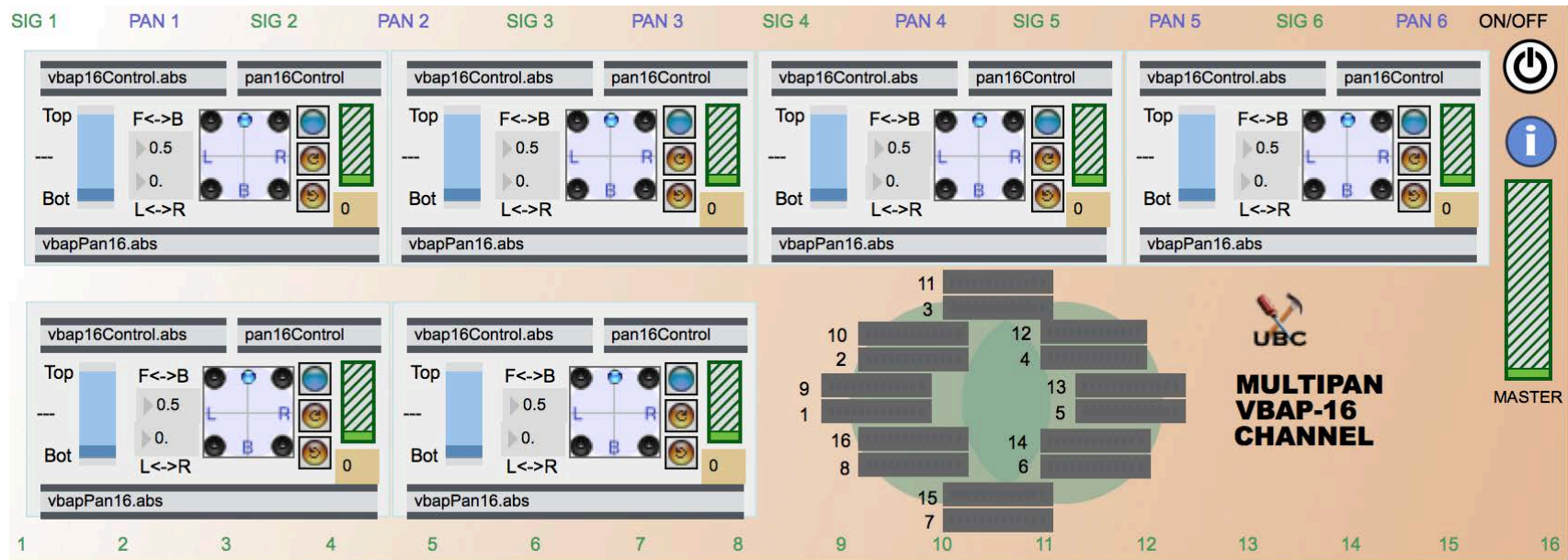




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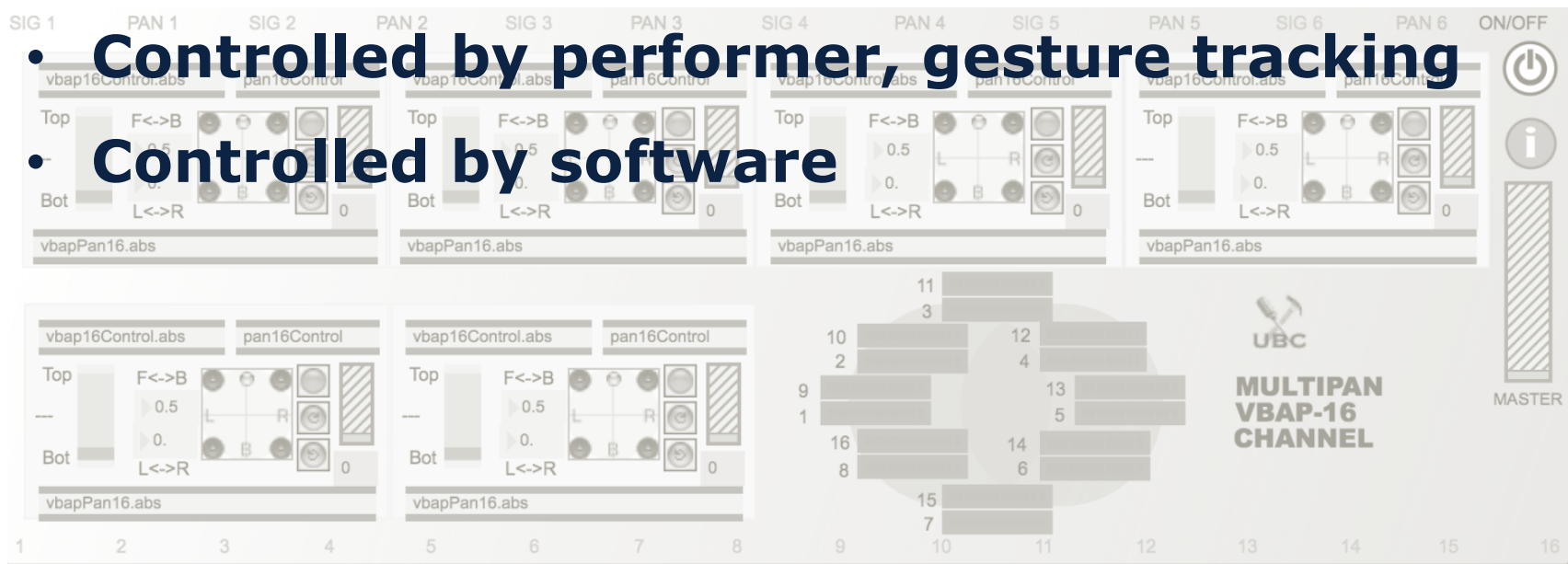
Research Interests: Spatialization





Research Interests: Spatialization

- 2, 4, 8, 16 channel systems
- **Controlled by performer, gesture tracking**
- **Controlled by software**





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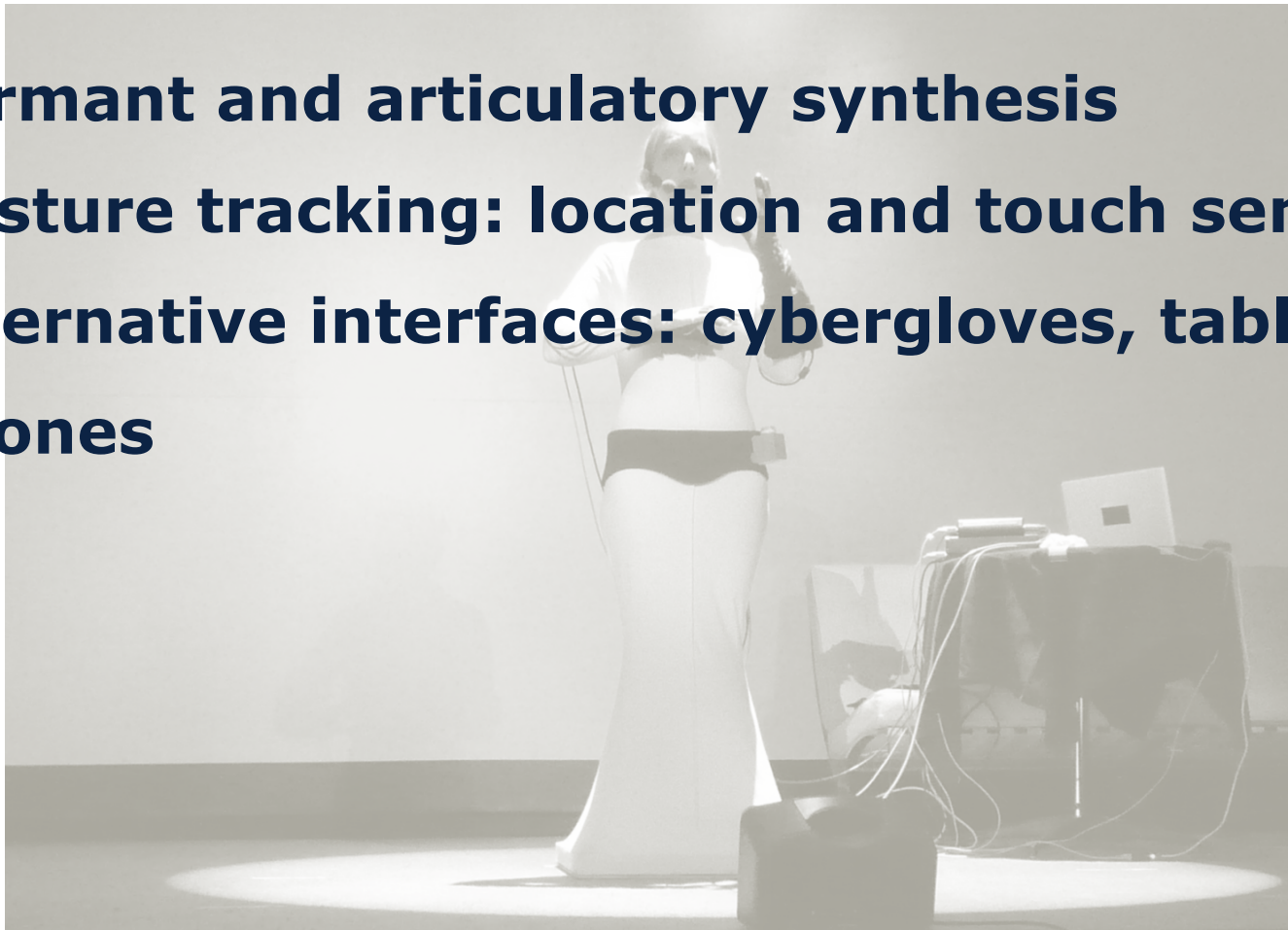
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Research Interests: Gesture-controlled speech synthesis



Research Interests: Gesture-controlled speech synthesis

- **Formant and articulatory synthesis**
- **Gesture tracking: location and touch sensing**
- **Alternative interfaces: cybergloves, tablets, phones**





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Research Interests: Spectral analysis for composition





Research Interests: Spectral analysis for composition

- **Analysis for compositional structure and processes**
- **Analysis for timbral development**
- **Analysis for notation purposes**





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Research Interests: Responsive User Body Suits (RUBS)





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Research Interests: Responsive User Body Suits (RUBS)

- On-body sensors for control of audio/video
- Used for music and dance
- Playable by multiple performers





Possible areas of contribution to ACTOR

- **Realtime notation and messaging (performance, spectral analysis)**
- **Interchange and messaging protocols between software components**
- **Development of interactive performance environments**
- **Explorations with acoustic/electroacoustic ensembles**
- **Technology-assisted orchestration pedagogy**



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