

PAPAPAGEI

one system,
two pieces.

P arametric-

A lgorithmic

P atchbay-

A ccompanist

G enerating

E vents by

I mprovisation

Salman Bakht

Media Arts and Technology

University of California

Santa Barbara, CA

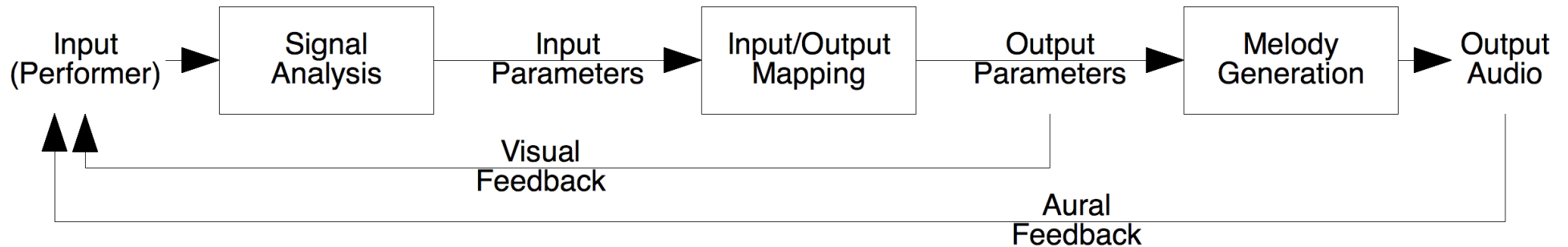
Clarence Barlow

Music, Media Arts and Technology

University of California

Santa Barbara, CA

System Design

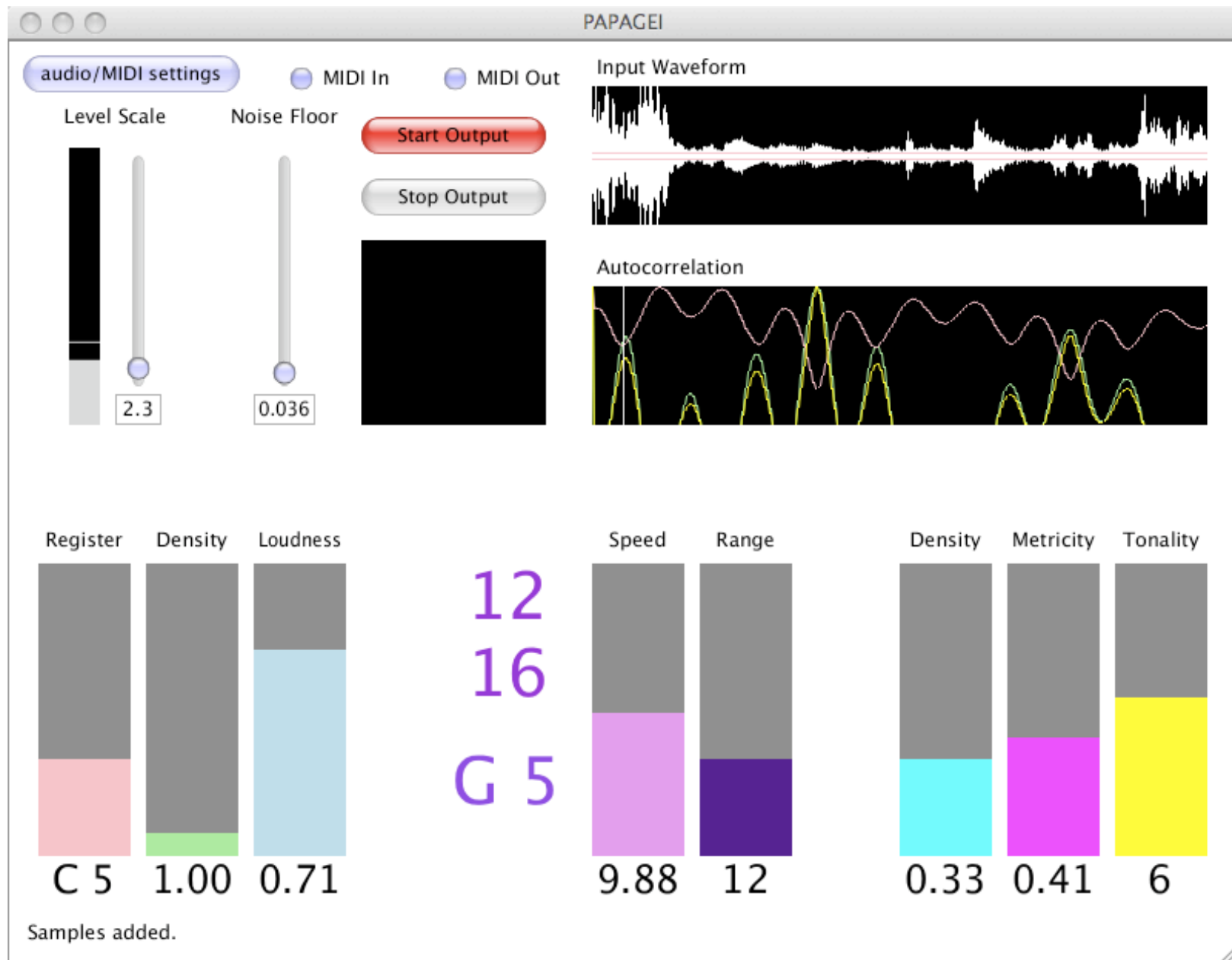


1. Instantaneous pitch of human performance is detected using a weighted autocorrelation function. Level is also detected.
2. These values are used to calculate musical input parameters: note density, register, loudness, etc.
3. Input parameters are mapped to output parameters as defined by the composer.
4. A melody is generated using these output parameters and played back in real-time.

resonancia flautomática (2008)

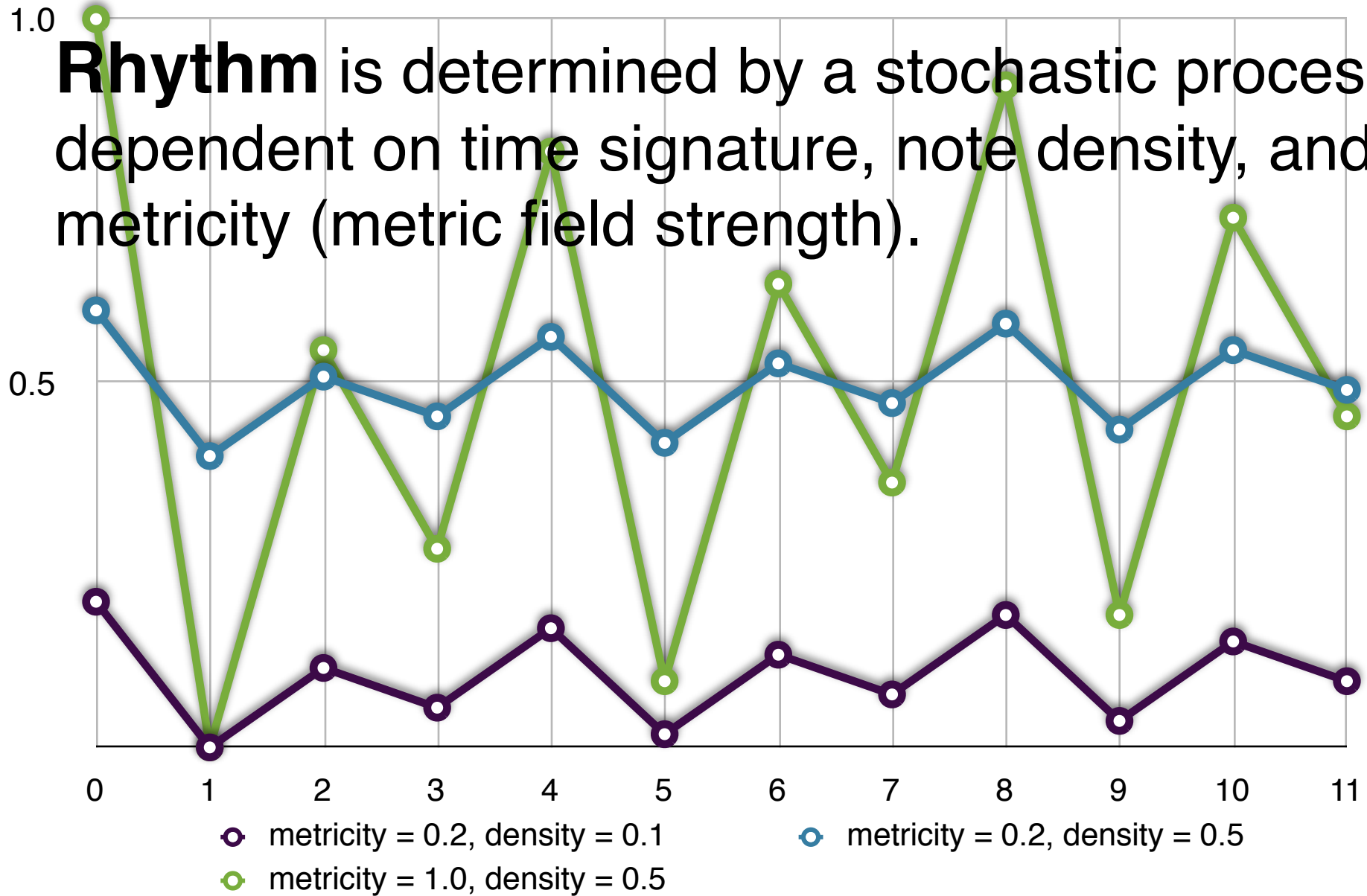
Clarence Barlow

- For flute performer (human) and *PAPAGEI* software with sampled flute playback.
- First performed by Alan Fabian, Thomas Frey, and Christoph Seibert as part of the sixth annual COMPUTING MUSIC Concert Series held in Cologne, Germany on November 9, 2008.



User interface and visual feedback for *resonancia flautomática*

Rhythm is determined by a stochastic process dependent on time signature, note density, and metricity (metric field strength).

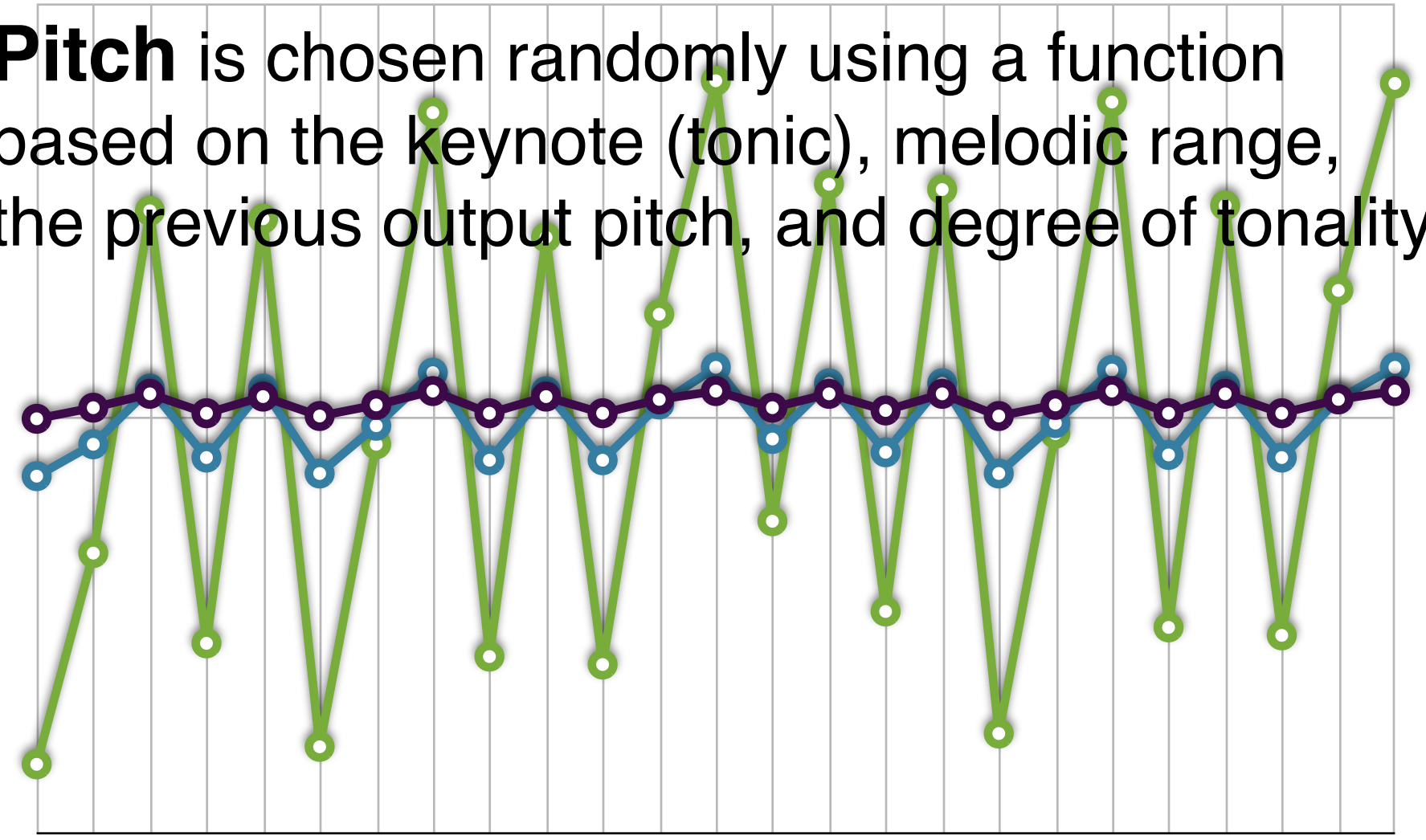


Probability of attack on each pulse in a measure for 3/4 time signature with 4 pulses per beat

0.08

Pitch is chosen randomly using a function based on the keynote (tonic), melodic range, the previous output pitch, and degree of tonality.

0.04



-12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12

● tonality = 0 ● tonality = 2 ● tonality = 4

Probability of an interval (in semitones) for a melodic range of +/- 12 if the previous note was the keynote

Parametric Mapping for *resonancia flautomática*

Input Parameter	Output Parameter	Relationship
Pitch	Keynote	Direct
Register	Density	Direct
Note Density	Metricity	Direct
Loudness	Tonality	Direct

- Speed and melodic range are increased or decreased by certain melodic gestures.

PIANO 04h (2009)

Salman Bakht

- For MIDI player piano played by human performer and *PAPAGEI* software.
- Extends use of *PAPAGEI* by allowing for multiple simultaneous input and output notes.
- Human performer plays on lower register of piano and *PAPAGEI* responds in higher register.
- Human performer plays up to 8 pitches, generating the same number of simultaneous output melodies.

Parametric Mapping for *PIANO 04h*

Input Parameter	Output Parameter	Relationship
Pitch	Keynote	Direct
Avg. Velocity	Velocity	Direct
Register	Metricity	Inverse
Velocity	Tonality	Direct
Width	Note Density	Direct
# of Notes	Melodic Range	Inverse

- Pressing certain keys triggers a switch in input and output registers.