

DAFTAR GAMBAR

Gambar 2. 1 Ilustrasi Artificial Intelligence.....	II-1
Gambar 2. 2 Cara Kerja Supervised Learning.....	II-4
Gambar 2. 3 Cara Kerja Unsupervised Learning.....	II-5
Gambar 2. 4 Cara Kerja Reinforcement Learning.....	II-6
Gambar 2. 5 Algoritma Reinforcement Learning.....	II-6
Gambar 2. 6 Cara kerja Reinforcement Learning MDP.....	II-8
Gambar 2. 7 Representasi Artificial Neural Network.....	II-10
Gambar 2. 8 Supervised Learning dalam Artificial Neural Network.....	II-12
Gambar 2. 9 Unsupervised Learning dalam Artificial Neural Network.....	II-12
Gambar 2. 10 Reinforcement Learning dalam Artificial Neural Network.....	II-13
Gambar 2. 11 Relasi Machine Learning dan Deep Reinforcement Learning.....	II-14
Gambar 2. 12 Deep Neural Network.....	II-16
Gambar 2. 13 Supervised Learning.....	II-20
Gambar 2. 14 User Interface Unity.....	II-23
Gambar 2. 15 Toolbar.....	II-23
Gambar 2. 16 Hierarchy.....	II-24
Gambar 2. 17 GameView.....	II-24
Gambar 2. 18 Scene View.....	II-25
Gambar 2. 19 Inspector.....	II-25
Gambar 2. 20 Project Window.....	II-26
Gambar 2. 21 Scene Flappy Bird.....	II-28

Gambar 2. 22 Notifikasi saat permainan berakhir.....	II-29
Gambar 3. 1 Kerangka Penelitian.....	III-1
Gambar 4. 1(Deep Reinforcement Learning).....	IV-3
Gambar 4. 2 (Rumus Q-learning).....	IV-6
Gambar 4. 3 (Membuat Proyek Baru di Unity).....	IV-18
Gambar 4. 4 (Import Paket ML-Agents).....	IV-18
Gambar 4. 5 (Agen).....	IV-19
Gambar 4. 6 (Penamabahan Rigidbody).....	IV-20
Gambar 4. 7 (Menambahkan Circle Collider).....	IV-20
Gambar 4. 8 (Tihang berupa rintangan).....	IV-21
Gambar 4. 9 (Pemasangan objek pipa dalam kode).....	IV-21
Gambar 4. 10 (Kode yang akan mengatur pipa).....	IV-22
Gambar 4. 11 (Penambahan Box Colider Pada Pipa).....	IV-23
Gambar 4. 12 (Menambahkan Box Collider 2D Pada Ground).....	IV-23
Gambar 4. 13 (Flappy Bird dilengkapi dengan ML-Agents Toolkit).....	IV-37
Gambar 4. 14 (Hyperparameters).....	IV-39
Gambar 4. 15 (Analisis Perbandingan Performasi Agen).....	IV-54