BAB V
SIMPULAN DAN SARAN

5.1 Kesimpulan

Hasil yang telah dijabarkan menuntut pada pengambilan kesimpulan sebagai berikut:

a. Telah berhasil dilakukan pemodelan atas CNN dan ViT untuk melakukan klasifikasi citra awan satelit terhadap data *long-tailed.* Pemodelan inisial memberikan hasil yang kurang memuaskan, dengan kompensasi terhadap kelas minoritas atau mayoritas terlalu besar yang menyebabkan akurasi atau rata-rata akurasi dari model mencapai nilai yang rendah. Setelah penyesuaian parameter dilakukan didapat bahwa model ViT dapat mendekati metrik dari penelitian sebelumnya.

b. Dalam proses perbandingan CNN dan ViT pada data bersifat *long-tailed,* ditemukan bahwa ViT lebih unggul dibandingkan CNN, walau pola distribusi akurasi pada tiap kelas mirip yang menunjukkan bahwa kedua model dapat menangani data dengan sifat *long-tailed* secara tidak jauh berbeda, model berbasis ViT mendapat jumlah total yang lebih baik dibandingkan CNN.

c. Penelitian ini telah berhasil melakukan optimasi terhadap CNN dan ViT pada data citra awan satelit bersifat *long-tailed* dan menemukan bahwa pada ViT, meningkatkan jumlah dimensi pada *adapter* memberikan peningkatan dari metrik secara signifikan, dan pada kedua model CNN dan ViT bahwa *loss function* yang paling cocok untuk dataset yang digunakan merupakan *Class Balanced,* yang memberikan kompromi di antara *Cross Entropy* yang umum digunakan dan *Logit Adjustment* yang merupakan fungsi yang digunakan awal oleh metode optimasi terhadap data *long-tailed* yang digunakan.

5.2 Saran

Hasil yang telah dijabarkan menuntut pada pemberian saran untuk penelitian selanjutnya sebagai berikut:

a. Penelitian selanjutnya disarankan untuk menggunakan tipe *foundation model* lain untuk menguji relasi tipe model terhadap performa model atas klasifikasi sistem cuaca dengan dataset citra awan satelit yang bersifat *long-tailed.*
b. Penelitian selanjutnya dapat menggunakan model dengan kompleksitas dan jumlah parameter yang lebih tinggi untuk mendapat hasil paling optimal serta perbandingan antara CNN dan ViT yang lebih baik dengan menggunakan representatif paling baik dari kedua tipe model tersebut.
c. Guna meningkatkan pemanfaatan dari informasi yang tersedia dari citra awan satelit, penelitian selanjutnya dapat menggunakan citra multispektral sejati dengan informasi pita spektral yang jumlah lebih besar dan lebih komprehensif dalam satu citra.

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Skripsi	: OPTIMASI DAN EVALUASI MODEL CONVOLUTIONAL NEURAL NETWORK DAN VISION TRANSFORMER DALAM MENGATASI KETIDAKSEIMBANGAN DATA LONG-TAILED PADA KLASIFIKASI CITRA AWAN SATELIT

l	Catatan	Paraf
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t 2025	Bimbingan tentang judul, preprocessing	
2025	Bimbingan tentang model yang digunakan	
2025	Bimbingan kecocokan model dan compute limit	
2025	Bimbingan progress modelling	
2025	Bimbingan tentang optimasi model	
2025	Bimbingan tentang implementasi website	
2025	Bimbingan tentang evaluasi model	
2025	Bimbingan tentang integrasi model ke website	
2025	Bimbingan tentang desain model	
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Tangerang, 11 August 2025

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